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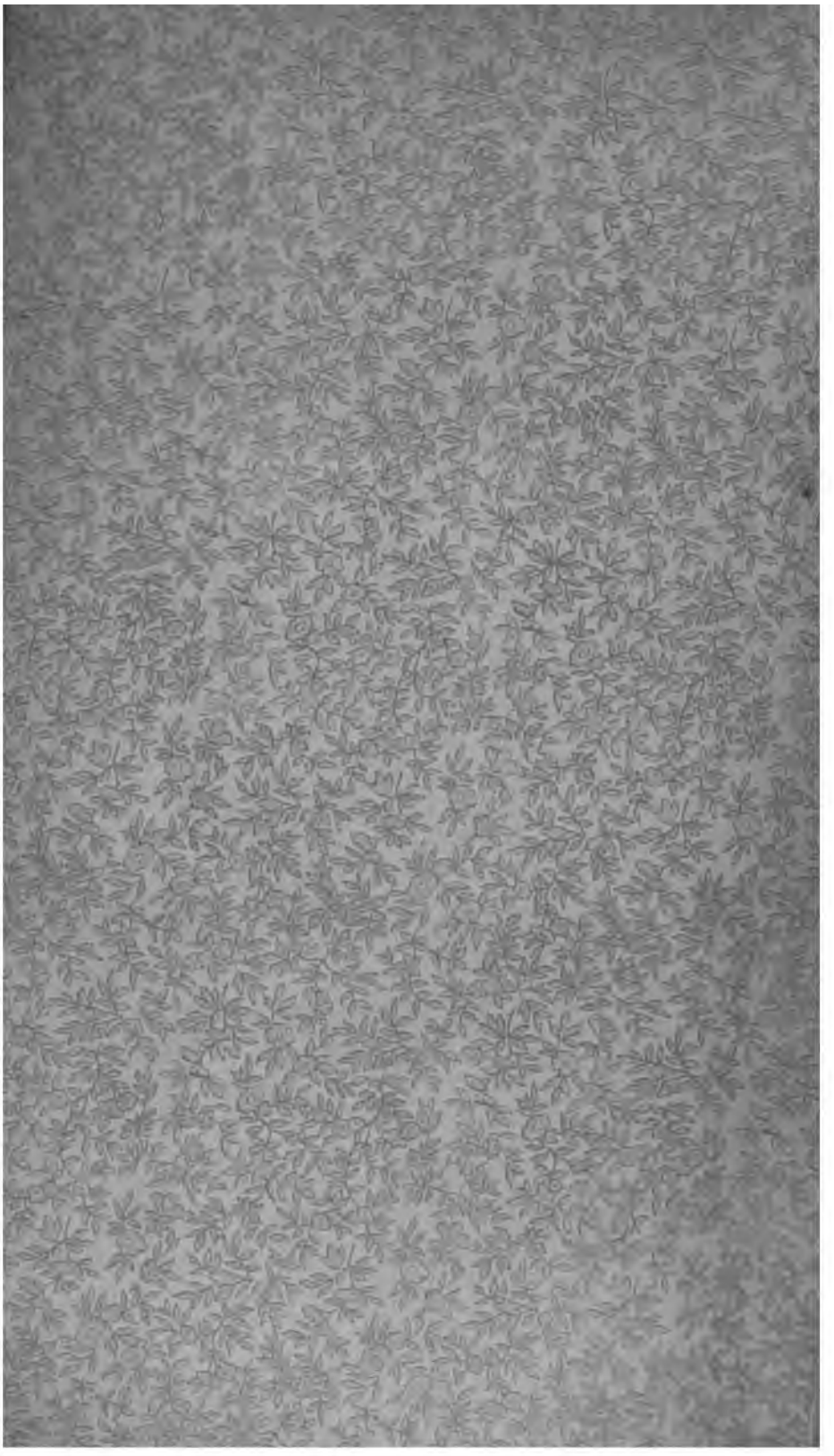

ANNUAL REPORT

OF THE

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OF THE

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FOR THE LANE LIBRARY

YEAR ENDING DECEMBER 31, 1891.

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HEALTH DEPARTMENT.

REPORT FOR THE YEAR ENDING DECEMBER 31, 1891.

HEALTH DEPARTMENT,
NEW YORK, April 18, 1892.

Hon. HUGH J. GRANT, *Mayor:*

SIR—In accordance with the provisions of section 533 of the New York Consolidation Act, the Commissioners of Health have the honor to present this their report of the operations of the Board of Health of the Health Department of the City of New York, for the year ending December 31, 1891. Under the provisions of the Consolidation Act, the organization of the Health Department is divided into two bureaus, namely, the Sanitary Bureau and the Bureau of Records.

THE SANITARY BUREAU.

The Sanitary Bureau is under the charge of the Sanitary Superintendent, who, as its chief executive officer, is charged with the general supervision of the sanitary work of the Department, the enforcement of the provisions of the several sections of the Sanitary Code, and the laws and ordinances relating to tenements and lodging-houses, and generally of the laws of the State relating to the Health Department of the City of New York. This bureau is divided into four divisions, as follows:

1st. The Division of Contagious Diseases, and Special Medical Sanitary Inspection.
2d. The Division of General and Special Sanitary Inspection.
3d. The Division of Plumbing and Ventilation.
4th. The Division of Offensive Trades and Food Inspections.

THE BUREAU OF RECORDS.

This Bureau is in charge of the Register of Records, and is entrusted with the registration of births, marriages and deaths, the granting of burial permits, the study of topographical causes of disease and circumstances of unusual deaths, and incidentally the classification and filing of vital statistics.

HOSPITALS.

There are also three hospitals under the charge of the Board of Health, namely, the Willard Parker Hospital, the Reception Hospital and the Riverside Hospital (North Brother Island), which are devoted to the reception and care of those suffering from contagious diseases.

PUBLIC HEALTH.

The record of vital statistics, as found in the report of the Register of Records for the year 1891, shows that, with an estimated population of 1,680,796, there were 43,659 deaths, as against 40,103 deaths in 1890 with an estimated population of 1,631,232, showing a death-rate of 25.97

per 1,000 in 1891, as against 24.58 per 1,000 in 1890. This increase in a great measure was probably due to the influence of influenza or the so-called la grippe. In the latter part of March, 1891, la grippe commenced to appear, and culminated in an epidemic much more fatal than that of 1890, and as its result undoubtedly caused an increased number of deaths from other diseases by depressing the vital energies of those who but for these complications might have otherwise recovered. Although we may not assume that the increase in the total number of deaths was due directly to this cause, we feel assured that to its influence is chargeable a large proportion of this increase. It is proper to add that a considerable portion of this increase was caused by the epidemic of scarlet fever.

From the tabulated statements of the Register of Records, it will be seen that the deaths from the following diseases show a marked increase over those of previous years, which, as before stated, can only be attributable to the subtle effects of the epidemic influence of la grippe. For instance, the increase over the previous year is shown as follows:

Miasmatic	1,336	Diarrhœal	241
Developmental	112	Nervous	139
Circulatory	315	Respiratory	930
Digestive	192	Heart disease	307
Pneumonia	829	Chronic bronchitis	145

Scarlet fever shows an increase over 1890 of 812, and diphtheria of 92, while influenza is directly charged with an increase of 540 deaths over those of 1890. By the table of comparative mortality by age and sex, of the total increase of 3,556 deaths for the year, more than one-half (1,919) were caused by the increased mortality among children. The increased prevalence of contagious diseases accounts to a considerable extent for this, but a new feature in this increase in the total mortality appears in the conduct of the epidemic influenza among children, who in the previous epidemic of this disease suffered but very little. By the following table it will be noticed that children and youth who passed almost unaffected through the epidemic of 1890, succumbed largely to it in the present year, as well as those of advanced age, while those in the prime of life, who suffered largely in 1890, showed no increased susceptibility to the disease in 1891. This is well illustrated in the following table (prepared by the Register of Records) of comparative mortality by age and sex for the years 1889, 1890 and 1891:

	Under 5 Years.		5 and Under 25 Years.		25 and Under 45 Years.		45 and Under 65 Years.		65 Years and Over.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
1889	9,165	7,987	2,135	2,155	4,555	3,371	3,692	2,879	1,742	1,938
1890	8,659	7,646	2,015	1,954	4,947	3,699	3,935	3,197	1,879	2,172
1891	9,732	8,492	2,309	2,288	4,977	3,799	4,014	3,427	2,072	2,549

From this comparison the Register arrives at the conclusion that while the epidemic of 1890 was fatal to those between the ages of 25 and 65, those under 25 were apparently but little

affected; while in 1891 the mortality of persons between 25 and 65 varied little from that of 1890, there was a marked increase of mortality at ages below and above those figures. The duration of the epidemic was much more protracted than in 1890, which was virtually over in six weeks from its commencement, while that of 1891 was four weeks in reaching culmination, and continued for five weeks more before it was apparently exhausted, and its subsequent effects undoubtedly resulted in causing many deaths by complication with other diseases, which cannot be clearly shown by the records.

The following tabulated statement shows the number of deaths under 5 and over 5 years of age, by comparison weekly for the years 1890 and 1891, and the percentage of each class to the total mortality:

Week Ending	No. of Week.	Deaths Under 5 Years of Age.		Percentage of Same on Total Mortality.		Deaths Over 5 Years of Age.		Percentage of Same on Total Mortality.		Total Deaths.	
		1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.
Jan. 10	1	327	253	22.97	34.01	1,097	491	77.03	65.99	1,424	744
" 17	2	302	285	26.24	36.26	849	501	73.76	63.74	1,151	786
" 24	3	265	284	30.39	37.97	607	464	69.61	62.03	872	748
" 31	4	265	300	33.89	40.70	517	437	66.11	59.30	782	737
Feb. 7	5	273	289	35.69	39.26	492	447	64.31	60.74	765	736
" 14	6	266	306	35.86	40.53	476	449	64.14	59.47	742	755
" 21	7	287	289	37.91	38.48	470	462	62.09	61.52	757	751
" 28	8	248	320	33.98	40.15	482	477	66.02	59.85	730	797
Mar. 7	9	249	291	35.78	39.59	447	444	64.22	60.41	696	735
" 14	10	265	324	34.46	39.85	504	489	65.54	60.15	769	813
" 21	11	281	327	36.40	38.92	491	513	63.60	61.08	772	840
" 28	12	288	300	36.78	33.52	495	595	63.22	66.48	783	895
Apr. 4	13	294	375	38.79	34.09	464	725	61.21	65.91	758	1,100
" 11	14	304	399	40.22	32.82	452	817	59.78	67.18	756	1,216
" 18	15	289	484	40.14	35.93	431	863	59.86	64.07	720	1,347
" 25	16	345	455	43.02	37.66	457	753	56.98	62.34	802	1,208
May 2	17	281	353	37.93	36.73	460	608	62.07	63.27	741	961
" 9	18	305	314	41.22	34.50	435	596	58.78	65.50	740	910
" 16	19	254	334	36.03	38.26	451	539	63.97	61.74	705	873
" 23	20	299	290	39.82	37.33	452	487	60.18	62.67	751	777
" 30	21	270	324	41.16	40.60	386	474	58.84	59.40	656	798
June 6	22	340	299	41.42	38.73	481	473	58.58	61.27	821	772
" 13	23	310	324	44.60	43.60	385	419	55.40	56.40	695	743
" 20	24	367	447	47.48	46.96	406	505	52.52	53.04	773	952
" 27	25	499	416	57.03	51.80	376	387	42.97	48.20	875	803
July 4	26	663	544	65.64	59.00	347	378	34.36	41.00	1,010	922

Week Ending.	No. of Week.	Deaths Under 5 Years of Age.		Percentage of Same on Total Mortality.		Deaths Over 5 Years of Age.		Percentage of Same on Total Mortality.		Total Deaths.	
		1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.	1890.	1891.
July 11	27	697	581	60.25	60.71	460	376	39.75	39.29	1,157	[illegible]
" 18	28	538	666	57.18	62.01	403	408	42.82	37.99	941	[illegible]
" 25	29	418	550	51.29	58.08	397	397	48.71	41.92	815	[illegible]
Aug. 1	30	474	481	52.26	55.54	433	385	47.74	44.46	907	[illegible]
" 8	31	382	380	46.77	49.81	433	383	53.23	50.19	815	[illegible]
" 15	32	369	492	50.41	48.96	363	513	49.59	51.04	732	[illegible]
" 22	33	352	319	46.87	41.27	399	454	53.13	58.73	751	[illegible]
" 29	34	352	376	49.16	45.52	364	450	50.84	54.48	716	[illegible]
Sept. 5	35	325	369	45.33	50.14	392	367	54.67	49.86	717	[illegible]
" 12	36	315	341	45.91	45.64	371	406	54.09	54.36	686	[illegible]
" 19	37	311	339	47.12	46.57	349	389	52.88	53.43	660	[illegible]
" 26	38	245	384	38.34	47.35	394	427	61.66	52.65	639	[illegible]
Oct. 3	39	279	356	42.92	49.66	371	371	57.08	50.34	650	[illegible]
" 10	40	253	325	41 27	45.01	360	397	58.73	54.99	613	[illegible]
" 17	41	235	336	38.02	44.98	383	411	61.98	55.02	618	[illegible]
" 24	42	223	276	37.10	40.12	378	412	62.90	59.88	601	[illegible]
" 31	43	220	275	36.54	37.31	382	462	63.46	62.69	602	[illegible]
Nov. 7	44	226	267	33.67	36.44	445	466	66.32	63.56	671	[illegible]
" 14	45	225	260	34.99	33.59	418	514	65.01	66.41	643	[illegible]
" 21	46	204	253	34.99	35.44	379	461	65.01	64.56	583	[illegible]
" 28	47	225	217	34.41	32.34	429	454	65.59	67.66	654	[illegible]
Dec. 5	48	212	238	31.55	35.26	460	437	68.45	64.74	672	[illegible]
" 12	49	240	250	34.10	34.06	464	484	65.90	65.94	704	[illegible]
" 19	50	260	273	35.57	34.12	471	527	64.43	65.88	731	[illegible]
" 26	51	247	321	35.04	36.10	458	568	64.96	63.90	705	[illegible]
Jan. 2	52	290	251	37.96	33.29	474	503	62.04	66.71	764	[illegible]

From this table it will be perceived that while the average death-rate of this city in 1891 was 25.97 as against 24.58 in 1890, the percentage of deaths of children under five years of age to the whole number of deaths was 41.74 in 1891 as against 40.66 in 1890, and of persons over five years of age 58.26 in 1891 as against 59.34 in 1890. It also shows that the percentage of deaths of children under five years of age to the whole number of deaths was lowest for the week ending November 28, 1891, when it was 32.34 as against 22.97 in 1890, when it was lowest, which was for the week ending January 10, and that it was highest for the week ending July 18, 1891, when it was 62.01 as against 65.64, the highest in 1890, which was for the week ending July 4. It will also be seen that the percentage of deaths of those over five years of age to the whole number of deaths was lowest for the week ending July 18, 1891, when it was 37.99 as against 34.36, the

lowest in 1890, which was for the week ending July 4, and that it was highest for the week ending November 28, 1891, when it was 67.66 as against 77.03, the highest in 1890, which was for the week ending January 10.

The Register in his report remarks "that the number of deaths reported in any one week in the epidemic of 1891 was not as large as that of 1890, but the slower course of the disease resulted in a greater mortality.

"The deaths attributed to influenza alone, or to bronchitis or pneumonia as its result in 1891, were 854 against 314 in 1890, while the total number of deaths during the months when the disease was most destructive was only 4,745 in January, 1890, as against 5,048 in April, 1891. In 1890, after the epidemic was over, the general mortality decreased as compared with 1889, so that although at the end of January there had been an excess of 1,370 deaths, the diminished mortality for the remainder of the year reduced the number to only 424. In 1891, on the other hand, April closed with an excess of 960 deaths from the beginning of the year as compared with 1890, and May with an excess of 1,464, and this increase was not only maintained but added to until the year closed with an excess of 3,556. Moreover, the excess of deaths in January, 1890, was more than accounted for by the excess of deaths from bronchitis, pneumonia, phthisis and influenza, showing that aside from these four causes the mortality was less than usual, while in April, 1891, the deaths from those four causes account for only two-thirds of the total cases of the month, showing that the mortality from other causes was largely in excess of the normal rate." It is, therefore, fairly presumable that la grippe has been the prime factor in the increase of the death-rate for this year.

Contagious diseases also added to the total mortality, especially among children. The increase in the latter is shown in the number of deaths in 1891:

Year.	Diphtheria.	Scarlet Fever.	Measles.	Total.
1891	1,361	1,220	663	3,244
1890	1,262	408	730	2,400

A total of 3,244, as compared with 2,400 in 1890.

Again, this city being the chief point for receiving and distributing emigrants, the density of its population in circumscribed areas, and its peculiar cosmopolitan character, render it eminently susceptible to variable death-rates, disturbing what would otherwise be its normal death-rate.

That New York City is pre-eminently a healthy city, both for residence and commercial purposes, with all these adverse conditions, cannot be doubted. With its rapidly increasing population, as shown by the following table for the past twelve years, the death-rate has been steadily decreasing, and only from unavoidable causes, such as a widespread epidemic, influences to which all large cities are alike amenable, it is not probable that the death-rate will show a permanent increase in the future.

The vast improvements in sanitary appliances, the constant attention to the crowded tenement-house population, the watchful care over contagious diseases and the generally advanced

intelligence among all but the most indifferent classes of our citizens with reference to their hygienic surroundings, cannot but improve the general welfare and conduce to the general healthfulness of the city.

The following table shows the estimated population, number of deaths and death-rate of this city for the past twelve years :

Year.	Population Estimated.	Deaths.	Death-Rate.	Year.	Population Estimated.	Deaths.	Death-Rate.
1880.....	1,209,268	31,937	26.41	1886.....	1,447,166	37.351	25.81
1881.....	1,246,011	38,624	30.99	1887.....	1,491,137	38,933	26.11
1882.....	1,283,870	37,924	29.54	1888.....	1,536,444	40,275	26.15
1883.....	1,322,880	34,011	25.71	1889.....	1,583,120	39,679	25.06
1884.....	1,363,075	35,034	25.70	1890.....	1,631,232	40,103	24.58
1885.....	1,404,401	35,682	25.40	1891.....	1,680,796	43,659	25.97

INFANT MORTALITY.

The deaths of children under five years of age were 18,224 as against 16,305 in 1890 and 17,152 in 1889, an excess of 1,919 over 1890. Of the total increase of 3,556 deaths for this year, the excess of 1,919 was more than fifty-six per cent. of the whole increase. As before stated, this increased mortality was due to the influenza epidemic in a great measure, although to a considerable extent it was also due to the prevalence of contagious diseases. To the causes which prevailed during the months of March, April and part of May, and before they had time to recuperate, came the heated terms of June, July and August, still further depressing infant vitality and persistently holding the rate of infant mortality above the normal standard of the previous year, and thereby increasing the total normal death-rate for the year.

The mortality of infants under five years of age seems in all large cities to be excessive, especially so when it is compared with the mortality of children of the same age outside of cities. It is the penalty of massing humanity in crowded tenements, and neither sanitarians or humanitarians can prevent or greatly modify these rates so long as these conditions prevail. A few lives, comparatively, can be saved by the efforts of both, as has been proven in the past; but until a great radical change can be instituted in our tenement-house life, the great rate of infant mortality will still continue. Miasmatic and epidemic influences at all times will give a variable death-rate, but so long as the preventable causes before enumerated remain, no considerable decrease in this special death-rate can be expected. Uncleanliness is also a chief factor, not only for infantile but also for adult mortality.

Even with all of these drawbacks, there has been a gradual and substantial gain in the chances of life of children, as will be shown by the following table, showing the total number of deaths in each year since 1875, number of deaths under one year of age, between one and five years of age, and over five years of age, with the percentage of each class to the whole :

Year.	Number of Deaths.				Per Cent. of Total.		
	Total.	Over 5 Years.	Under 1 Year.	1 to 5 Years.	Over 5 Years.	Under 1 Year.	1 to 5 Years.
.....	30,709	15,861	8,540	6,308	51.65	27.81	20.54
.....	29,152	14,942	8,170	6,040	51.26	28.03	20.72
.....	26,203	13,896	7,419	4,888	53.03	28.31	18.66
.....	27,008	14,598	7,100	5,310	54.05	26.29	19.66
.....	28,342	15,565	7,570	5,207	54.92	26.70	18.37
.....	31,937	17,287	8,725	5,925	54.13	27.32	18.55
.....	38,624	20,887	9,691	8,046	54.08	25.09	20.83
.....	37,924	20,404	9,867	7,653	53.80	26.02	20.18
.....	34,011	20,155	8,668	5,188	59.26	25.49	15.25
.....	35,034	19,762	9,636	5,636	56.41	27.50	16.09
.....	35,682	20,415	9,303	5,964	57.21	26.08	16.71
.....	37,351	21,230	9,830	6,291	56.84	26.32	16.84
.....	38,933	22,167	10,083	6,683	56.94	25.90	17.16
.....	40,175	22,817	10,411	6,947	56.79	25.91	17.29
.....	39,679	22,527	10,527	6,625	56.77	26.54	16.70
.....	40,103	23,798	10,288	6,017	59.34	25.66	15.00
.....	43,659	25,435	11,241	6,983	58.26	25.75	15.99

SUMMER CORPS.

Under the provisions of section 4, chapter 504 of the act of 1879, the Board of Estimate and ortionment is authorized to appropriate each year the sum of $10,000 to be known as "The ment-house Fund," to be placed to the credit of the Health Department, to be by it ided.

In the latter part of the month of June in each year a special corps of physicians is appointed, e duty it is to visit each and every tenement-house, especially among the poorer and more led districts of the city, for the purpose of affording medical advice and treatment, distribute for the care of infants, and search out and cause to be corrected all unsanitary conditions.

The necessity for this special service during the year was apparent by the rapidly increasing ality among children during the first week in July, at which time a corps of fifty physicians appointed, forty-eight of whom were assigned to duty in the forty-eight districts, into which, his inspection, the city was divided. From the nature of their mission they were enabled ically to correct many household abuses which affected the health of the occupants, which not be reached by the Medical Corps and Medical Sanitary Inspectors. Two Inspectors also specially detailed to attend upon the hospital boat of the "St. John's Guild," as well on other charitable excursions given for the benefit of mothers and children.

The following tabulated statement shows in detail the record of the work of this corps during the past summer:

Number of tenement-house visitations	39,164
Number of families visited	335,293
Number of sick treated	19,777
Number of minor nuisances abated by personal effort	5,340
Number of complaints of other nuisances forwarded	360
Number of circulars for care of infants distributed	36,551
Number of tickets to the "St. John's Guild" excursions distributed	14,861

The following table from the Bureau of Records illustrates more fully the direct results of the work of the Summer Corps:

1891. Week Ending	Diarrhœal Diseases.	Inanition, Marasmus, etc.	Total of Both Columns.	Deaths Under 5 Years.	Mean Temperature.	Mean Humidity.	Maximum Temperature.	Maximum Humidity.
July 11....	283	70	353	581	70.1	67	82°	88
" 18....	339	59	398	666	77.0	75	90°	90
" 25....	265	67	332	550	76.8	76	86°	100
Aug. 1....	244	68	312	481	69.9	71	79°	94
" 8....	177	51	228	380	74.5	73	91°	89
" 15....	234	73	307	492	79.9	75	98°	87
" 22....	138	44	182	319	76.4	75	89°	90
" 29....	141	66	207	376	76.4	75	88°	90

The practical results as shown by the foregoing table are certainly most gratifying, for it cannot be questioned that without the prompt medication and sanitary care thus afforded by this corps, many more deaths would have been recorded, to say nothing of the sickness and misery relieved.

We cannot fail to commend the assistance, during the progress of this work, of several of the charities, such as the "sea air trips" upon the hospital boat of "St. John's Guild" for sick children and their mothers, in conjunction with the treatment at the Seaside Hospital of the same Guild at New Dorp, Staten Island, the Helping Hands of the King's Daughters in nursing the poor sick, furnishing food supplies, clothing and medicines, the summer sea air excursion of the Hebrew Sanitarium, the Tribune Fresh Air Fund, the Summer Corps of the "Evening World," and other charitable excursions, church societies, etc., which aided largely in the work and afforded to thousands a much-needed change of air, so necessary to the prolongation of infant life.

The appropriation by the City for the Summer Corps of Medical Inspectors is most timely and advantageously spent, securing what must eventually result in saving many lives that may become of particular value in the great body politic.

CONTAGIOUS DISEASES.

During the year there was an increase in the number of reported cases and deaths from contagious diseases over those of the previous year. The number of cases of scarlet fever for the past year was 7,442, as against 3,087 in 1890, with 1,220 deaths, as against 408 in 1890. The number of cases of measles was 11,980, as against 9,544 in 1890, with 663 deaths as against 730 in 1890. During the year the number of cases of diphtheria was 4,874, as against 4,250 in 1890, with 1,361 deaths, as against 1,262 in 1890. The number of cases of typhoid fever was 1,342, as against 1,141 in 1890, with 384 deaths, as against 352 in 1890. The number of cases of small-pox was 21, as against 5 in 1890, with 2 deaths, as against 2 in 1890.

In carrying on the work of the service of this division during the first three months of the year, the city was divided into eleven districts, each of which was under the immediate charge of a Medical Sanitary Inspector. His special duty required him to be familiar with the symptoms, treatment and causes of contagious and infectious diseases. When a report was made to the Board of a case of contagious disease, the Inspector was charged not only with the duty of ascertaining the truth of the same, but he was also, if time permitted, required to make a thorough examination of the premises and ascertain its defects, and to recommend whatever remedy might be necessary, upon which an order was issued by the Board directing that the proper repairs or changes be made. This system continued in vogue until early in the month of April, when important changes were made in the details and methods of medical sanitary inspection. The inspection of plumbing and drainage and other unsanitary conditions was relegated to the Division of Plumbing and Ventilation, two of the Medical Inspectors being transferred to that division. The city was divided into six sanitary divisions, one Inspector being assigned to each, charged with the duty of diagnosing and the disposition of all cases of contagious diseases reported, either by their removal to the hospitals of the Department or isolation in their own premises, as the necessities of each case required.

The following table shows in detail the work of the Medical Sanitary Inspectors for the year :

Cases of Contagious Diseases Reported to this Division and Referred to the Medical Sanitary Inspectors.

Typhus fever	9	Diphtheria	4,874
Typhoid fever	1,342	Small-pox*	21
Scarlet fever	7,442		
Measles	11,980	Total	25,668

Other Diseases Reported and Referred to Inspectors.

Cerebro-spinal meningitis	119	Tabes mesenterica	12
Varicella	296	Perotitis	11
Malarial fever	113	Erysipelas	25
Croup	490	Rotheln	2
Dysentery	49	Leprosy	3
Tubercular meningitis	430		
Phthisis	4,691	Total	6,334

* 12 from Quarantine.

Other Work Performed by the Medical Sanitary Inspectors.

Number of cases of contagious and other diseases visited		26,132
Number of houses inspected on account of contagious and other diseases occurring in them—		
In tenements	20,914	
In private houses	2,313	
In schools and institutions	1,561	
In hotels	40	
Miscellaneous	1,274	
		26,132
Number of complaints and reports made of inspections for orders by the Board of Health		8,683
Number of visits to physicians and undertakers to secure observance of sections of Sanitary Code relating to contagious diseases		364
Number of notices sent to principals of schools to effect exclusion from school of children exposed to contagious diseases		14,507
Number of special diagnoses made		2,352

HOSPITALS.

The hospitals of this Department, three in number, are devoted to the treatment of contagious disease. The Willard Parker Hospital and Reception Hospital are located near the foot of East Sixteenth street; the third, the Riverside Hospital, is situated on North Brother Island, opposite East One Hundred and Thirty-eighth street, and is, therefore, six miles at least from the preceding ones. In the Willard Parker Hospital, which has an ordinary capacity of 60 beds, all cases of diphtheria and the scarlatina of childhood are treated. In this hospital, during the year 1891, 324 cases of scarlatina were treated, with a mortality rate of 24.69 per cent., and 303 cases of diphtheria were treated, attended with a death-rate of 28.05 per cent. An examination of the general death-rate of these diseases in the city at large, during the year, discloses the fact that the death-rate of scarlatina was 15.85 per cent. of the number of cases reported as such, and diphtheria 27.96 per cent. of the reported cases of this disease. The larger death-rate shown by the hospital records is attributable in great part to the malignancy of the disease during the year. The death-rate of the Willard Parker Hospital may be accounted for still further in two additional ways: First, all cases treated as diphtheria at Willard Parker Hospital are unquestionably such, so far as human discernment can determine. These cases have been subjected to the scrutiny, not only of the family physician who first reports them, but of the Special Inspector of this Department who visits the premises to confirm the diagnosis, if the case be one for the hospital, and, finally, the opinion of these two gentlemen must be corroborated by the House Physician of the hospital before the patient is admitted to the wards for treatment. The fact that not a few cases reported as diphtheria, for removal to the hospital, are found by the Special Inspectors not to be such disease, explains in part, also, the larger comparative mortality rate in the hospital than in the city. It is regretted that circumstances require the mention of another fact, which contributes largely to the death-rate of the hospitals of this Department. It frequently happens that physicians attend patients of the poor, who are afflicted with contagious disease, so long as financial recompense for their services is forthcoming, and, when this fails, the patient is removed to a hospital of this

Department. Further comment is not necessary, as language is not sufficiently strong to characterize such a course on the part of a physician.

The following table shows in detail the cases treated, under 5 years of age, between 5 and 16, 16 and 21, and over 21 years of age, with the number of deaths of each class, and rate of mortality of each class to the whole :

Willard Parker Hospital.

	Cases Treated.			Deaths.		
	Male.	Female.	Total Number of Cases.	Male.	Female.	Total Number of Deaths.
Scarlet fever	158	166	324	38	42	80
Diphtheria	128	175	303	42	43	85
Total	286	341	627	80	85	165

	Scarlet Fever.			Diphtheria.		
	Cases Treated.	Deaths.	Rate of Mortality.	Cases Treated.	Deaths.	Rate of Mortality.
Under 5 years	182	61	33.52	127	61	48.03
5 to 16 years	131	18	13.74	69	16	33.19
16 to 21 years	8	1	12.50	45	5	11.11
Over 21 years	3	..	0.00	62	3	4.84
Total	324	80	24.69	303	85	28.05

The Reception Hospital, as its name indicates, is employed for the reception of all patients affected with contagious disease who are consigned to Riverside Hospital, and also those of doubtful diagnosis, and especially the latter, when public safety demands their removal from the place of its inception.

During the year 1890, 522 patients were received here, 5 of which died before their transfer could be safely attempted. During the following year (1891) 904 patients were received, of which 5 died on the premises before consignment. It is apparent at once that the resources of this hospital were severely taxed during the latter period. In fact, untiring vigilance of the physician in charge was required to prevent disease resulting from intercommunication. This hospital was erected many years ago, and was intended only as the temporary abiding place of small-pox and typhus fever, pending their transfer to the Riverside Hospital, or the establishment of a positive diagnosis. Owing to the increase in the size of the city, and to the attention since given by the Board to other forms of contagious disease, this hospital has become wholly inadequate to meet the requirements of the service. However, $30,000 were appropriated by the Board of Estimate and Apportionment during the latter part of the year 1891, with which to erect a new, more commodious and better equipped structure. Action in this direction, however, is still deferred, owing

to inability to secure suitable ground area at the present site, on which to construct a proper and capacious building.

Nor is this proposed Reception Hospital sufficient to meet the demands of the service, when the time of the Department, the comfort and safety of the patients and a wise expenditure of means and money are considered. At the present time patients ill of contagious disease who reside in the vicinity of One Hundred and Thirty-eighth street must be conveyed through the public thoroughfares four, five, six and even eight or more miles to East Sixteenth Street Reception Hospital, then, perhaps, they are taken by boat back again to opposite One Hundred and Thirty-eighth street and placed in the hospital on North Brother Island. In the interests of wise expenditure and a compliance with humanity's demands, a suitable reception hospital for the accommodation of these unfortunate victims of disease should be constructed at once at the water's edge as near as possible to North Brother Island. It appears necessary to again call the attention of the public to the fact that there should be erected in this city one or more hospitals for the reception and treatment of those cases of contagious disease that are able and willing to meet the expense of such attention. It is a sad commentary on the public spirit of this great city that no provision has yet been made to care for such as may become thus afflicted, who come from other parts of the country to patronize the business interests that add to the city's wealth and enterprise, or, perchance, may be invited by its citizens to join in the celebration of national events. Suitably placed hospitals, provided with private rooms and an opportunity to secure the attention and treatment of a well-to-do citizen should be afforded. As before stated, Riverside Hospital is situated on North Brother Island, a distance at least of six miles from East Sixteenth street. This island is beautifully located for the purposes of retention and treatment of all varieties of contagious disease. It has an area of about fourteen acres, is dry, cool, healthful and surrounded by objects of great interest. Its distance from the nearest main shore is about one-half a mile. In the hospital and pavilions here situated are treated all form of contagious disease, except diphtheria, that come under the jurisdiction of the Health Department.

The following table shows the variety of disease and the number of cases of each treated here during the past year, both male and female, adult and minor, the number of deaths, together with the mortality rates of each disease during this period :

Riverside Hospital.

	Cases Treated.			Deaths.		
	Male.	Female.	Total No. of Cases.	Male.	Female.	Total No. of Deaths.
Small-pox	16	5	21	1	....	1
Chicken-pox	11	6	17	3	1	4
Leprosy	2	....	2	....	....	....
Typhus fever	5	3	8	....	....	....
Scarlet fever	128	142	270	32	23	55
Measles	289	274	563	45	34	79
Whooping-cough	8	10	18	1	....	1
Total	459	440	899	82	58	140

	Cases Treated.		Deaths.	
	Adults.	Minors.	Adults.	Minors.
Small-pox	18	3	1	....
Chicken-pox	1	16	1	3
Leprosy	2	....	....	....
Typhus fever	6	2	....	....
Scarlet fever	131	139	8	47
Measles	133	430	4	75
Whooping-cough	1	17	....	1
Total	292	607	14	126

Finally, and very important, many of the public-spirited physicians of the city give to the Department and to the sick the benefit of that judgment and skill which result from mature thought and long experience in the treatment of disease.

VACCINATION.

For the prevention of small-pox, this Department has an organized corps of physicians who are known as Permanent Inspectors of Vaccination, in addition to which other physicians, who are known as Temporary Inspectors of Vaccination, are appointed in the early spring and fall months, all of whom are clothed with the specific duty of offering, by house to house visitation, free vaccination to all persons needing it, thus preventing the laying of the foundation for the occurrence and spread of small-pox. Under the provisions of section 97 of the sanitary regulations of the Board of Education, no pupil is allowed to attend any school, nor can any teacher be employed in the same, unless such pupil or teacher has been properly vaccinated; and as a prerequisite for the admission, employment or attendance of a pupil or teacher, the principal of the school must be furnished with a certificate of a physician in good standing, as evidence of such vaccination, and is required to co-operate with such agents of the Board of Health as may be authorized to visit the schools for the purpose of examining and vaccinating the pupils, and must require re-vaccination of all pupils ascertained by the agents of the Board of Health not to be fully protected by a former vaccination, and no pupil refusing to be so re-vaccinated, either by the agent of the Board of Health or by the physician of the family to which he or she belongs, shall be permitted to attend any public school until such requirement is fully complied with. In accordance with the above regulation, pupils of the various schools are vaccinated by special Inspectors of Vaccination, who visit the schools during teaching hours and vaccinate all pupils, except some good reason for non-vaccination be presented by the teacher, pupil or parent. The vaccine virus used is produced by a branch of the Department known as the "Vaccine Laboratory," and all surplus virus is sold to applicants from this and other cities, at a fixed price, the proceeds thereof being turned into the City Treasury, to be used in paying the salaries of the Temporary Inspectors of Vaccination. In the case of primary vaccinations, strict supervision is made of the work. Each Inspector is required to report his primary vaccinations, and the persons so vaccinated are visited by another Inspector of Vaccination, whose duty it is to report whether or not they were successfully done. During

the past year 25,505 primary vaccinations were made, as against 30,329 in 1890, and 84,132 re-vaccinations as against 61,788 in 1890, an increase of 17,520 in primary and re-vaccinations. The net cost per vaccination of the Department for each person vaccinated was twelve cents in 1891 as against seventeen cents in 1890 and twenty-two cents in 1889.

The following table shows by comparison the vaccinations performed by the Vaccinating Corps for the past five years, the salaries of Inspectors, the cost of virus, and also the cost per vaccination to the Department for each person vaccinated:

	1887.	1888.	1889.	1890.	1891.
Cash received for virus	$2,239 36	$2,791 06	$2,459 22	$1,622 51	$2,096 13
Salaries, regular vaccinators	$10,650 00	$12,733 79	$10,599 92	$11,043 25	$9,900 00
Salaries, temporary vaccinators	10,292 46	4,008 80	3,987 21	3,523 46	2,981 [illegible]
Total salaries	$20,942 46	$16,742 59	$14,587 13	$14,566 71	$12,881 [illegible]
Cost of calves and cattle	$2,637 68	$2,621 00	$2,925 00	$1,857 00	$1,752 00
Cost of feed	574 61	476 95	368 60	264 00	339 50
Other supplies	941 85	1,029 78	1,033 86	805 45	116 66
Rent	.....	.....	.....	.....	600 00
Total cost of supplies	$4,154 14	$4,127 73	$4,327 46	$2,926 45	$2,808 16
Number of vaccinations	89,270	83,063	74,542	92,047	109,637
Cost of each vaccination	$0.25½	$0.21¾	$0.22+	$0.17+	$0.12+

The following miscellaneous work was performed by the Chief Inspector of Vaccination:

Number of animals vaccinated for cultivation and propagation of virus	148
Number of quill slips collected	192,200
Number of ivory points collected	17,650
Number of tubes of virus collected	595

DISINFECTION.

A great preventive of the spread of contagious disease is an abundant supply of fresh air; it is also especially necessary to remove and render innocuous all materials which are known to favor the spread of disease. Infected houses, rooms and articles of clothing are, therefore, given special attention by the Board, through the agency of a corps of Disinfectors, which is connected with the Division of Contagious Diseases. For the purposes of this work, the city is divided into eight districts, to each of which a Disinfector is assigned, whose duty it is to visit all houses in which contagious diseases have been reported, when possible, fumigate and disinfect the premises and its contents, and give verbal and printed instructions for further disinfection, when necessary. To one Disinfector is given the duty of removing all portable articles from the infected premises to the

Disinfecting Station near the foot of East Sixteenth street, where it is rendered innocuous in an apparatus especially constructed for that purpose, by the agency of hot air and steam. It is then returned to the owner. A crematory is connected with the Disinfecting Station, in which infected materials can be destroyed. This system of disinfection of portable articles has caused a saving of much valuable material to owners, who in many instances were unable to bear the loss.

During the past year the following amount of work was performed by this corps:

Number of visits to infected houses for purposes of disinfection and fumigation	30,147
Number of infected rooms fumigated after occurrence in them of contagious diseases	28,347
Number of infected and contiguous rooms for which disinfectants have been distributed by disinfectors	96,208
Number of pieces of infected goods removed by Department	35,519
Number of pieces of infected goods brought to the Department by owners for disinfection	10,930
Number of pieces of infected goods returned to owners after disinfection	37,979
Number of pieces of infected goods destroyed by cremation	8,420
Number of pieces of goods disinfected and remaining on storage to be returned	50
Number of times ambulances and other vehicles were fumigated	1,508

AMBULANCE CORPS.

Connected with the Division of Contagious Diseases there is an Ambulance Corps composed of four men, whose duty it is, when ordered by the Medical Inspectors, to remove patients to the hospitals, disinfecting the premises immediately thereafter.

The work performed by this corps during the year was as follows:

Number of patients removed on account of contagious diseases to the hospitals of the Department	1,065
Number of bodies (dead from contagious diseases) removed to Reception Hospital, for interment at Hart's Island	19

VETERINARIAN.

There is in connection with the work of the Department a Veterinary Surgeon, whose duty it is to examine all cattle used for the purpose of cultivating vaccine, as to their healthy condition; also to examine all cattle, horses and other animals in the city, suspected of or liable to disease.

The result of his work during the year was as follows:

Number of cases of contagious disease visited	866
Number of cattle examined	34,721
Number of glandrous horses destroyed	68
Number of post-mortems on cattle	146

SANITARY INSPECTION.

The several sections of the Sanitary Code are enforced by the general orders of the Board, or in extreme cases, by peremptory orders of the Sanitary Superintendent, or by arrest through the medium of the Sanitary Police.

For the purpose of special sanitary inspection the city is divided into twenty-five districts, one Inspector being detailed for work in each district, his duty consisting in the investigation and

making of reports and recommendations to the Board upon citizens' complaints referred to him, and of the frequent inspection of and report upon special places which are likely to become dangerous to life or detrimental to health. This is in addition to the duty of inspecting the plumbing and drainage of all new buildings erected.

Each Inspector is required to be thoroughly familiar with his district, and, when time affords, to make a general inspection of his district, also forwarding, as before, complaints of any sanitary defects he may discover. He is also required to reinspect premises upon which orders have been issued to see that the same have been complied with.

In the investigation of complaints, the following instructions were issued early in the year to each of the Inspectors for their guidance in reference to the form of return of their investigation of the result and recommendations thereon.

Complaints and Recommendations.

Complaint—That the soil-pipe of the water-closet (give location, etc.) is obstructed and the bowl (or hopper) is filthy and offensive.

Recommendation—That the water-closet be cleaned and all obstructions in soil-pipe removed.

C. That the water-closet is not (or, is not properly) flushed, and is offensive.

R. That the water-closet be cleaned and properly flushed.

C. That the pan of the water-closet leaks (or is not properly adjusted) and does not preserve a water-seal.

R. That the defective pan of water-closet be replaced by a new one (or be readjusted so as to preserve a water-seal).

C. That the hopper of the water-closet is old, corroded, and cannot be kept clean, and is filthy and offensive.

R. That the old, corroded hopper of water-closet be replaced by a new enameled one.

C. That the floor under the seat of the water-closet is not protected from drippings of urine, and is filthy and offensive.

R. That the water-closet be provided with an enameled drip-tray, and the floor under the seat cleaned and disinfected.

C. That the drip-tray is an old, metallic one, filthy with urinary deposits.

R. That the old, corroded, filthy drip-tray be replaced by an enameled one.

C. That the water-closet apartments are not (or are insufficiently) ventilated.

R. That the water-closet apartments be ventilated by a special shaft (eight inches, etc.), extending above the roof, and that the doors be cut away at least three inches at the bottom to promote ventilation.

C. That the woodwork of the water-closet is saturated with filth, so that it cannot be properly cleaned.

R. That the filthy woodwork of water-closet be replaced by new.

C. That the supply-pipe of the water-closet leaks.

R. That the supply-pipe, etc., be repaired so as not to leak.

C. That the water-closets (or water-closet on the —— floor) are flushed directly from the Croton-water supply-pipe of the house, and the water used for drinking and cooking purposes is in danger of contamination.

R. That each water-closet (give location) be flushed from a water supplied cistern, properly adjusted over the same.

C. That the school sink (location) is not properly flushed, and is filthy and offensive.

R. That the school sink be disinfected, emptied and cleaned, and flushed daily.

C. That the school sink discharges its contents into a manhole which is sewer connected, but is always filthy with sewage.

R. That the school sink be connected with house-drain by a continuous pipe, with running trap and hand-hole, and that said manhole be cleaned and filled with fresh earth.

C. That the urinal is not properly flushed and is filthy and offensive.

R. That the urinal be cleaned and properly flushed.

C. That the urinal is an old, corroded metallic one, filthy and difficult to clean.

R. That the old corroded urinal be replaced by a new enameled one (or by a porcelain one).

C. That the floor under the urinal is not protected, and is filthy with drippings of urine.

R. That a safe be constructed under urinal, and the filthy and saturated flooring be replaced by new.

C. That the waste-pipes of the sinks (or urinals, etc.) are not trapped, and the main waste-pipe is not ventilated (or is insufficiently ventilated by a ¾-inch pipe, etc.).

R. That the sinks, etc., be properly trapped, and the main waste-pipe extended in full calibre two feet above the roof.

C. That the lead waste-pipes of the sinks are connected with the iron main waste-pipe by defective cement (or putty) joints.

R. That all connections between lead waste-pipes from sinks and the main waste-pipe be made with brass ferules, lead calked and wiped.

C. That the lead waste-pipe is connected with the iron drain by a lead saddle wired on (or puttied or cemented).

R. That the lead waste-pipe be connected with the iron drain by means of an iron saddle hub, brass ferule, etc.

C. That the lead waste-pipe leaks.

R. That the waste-pipe be repaired so as not to leak.

C. That the safe wastes (give location, under pumps, water-closets, basins, etc.) are connected with the soil-pipe and are not sealed.

R. That the safe wastes (etc., etc.) be soldered up (or made to discharge through a continuous pipe upon the cellar floor, or into a trapped, sewer connected, water supplied, open sink).

C. That the traps under sinks are emptied by siphoning.

R. That the traps (etc.) be so adjusted that they cannot be siphoned.

C. That the overflow pipe of tank is connected with the soil-pipe.

R. That the tank overflow pipe be disconnected from the pipe.

C. That the waste-pipe of ice-box is connected with the house-drain.

R. That the waste-pipe of the ice-box be disconnected from the drain and be made to discharge into a properly trapped, sewer connected, water supplied, open sink.

C. That the soil-pipe is not ventilated (or is insufficiently ventilated by a 1-inch or 2-inch pipe, etc.).

R. That the soil-pipe be ventilated by extending the same in full calibre two feet above the roof.

C. That the soil-pipe serves as a leader, and the traps of the sinks and water-closets connected therewith are siphoned.

R. That the use of the soil-pipe as a rain leader be discontinued, and a separate and independent rain leader be provided; that the soil-pipe be ventilated by extending same in full calibre two feet above the roof.

C. That the soil-pipe is defective (give location).

R. That the defects in soil-pipe on —— floor be closed with iron bands.

C. That the earthenware house-drain is defective, and foul gases and liquids escape therefrom into the cellar.

R. That the defective earthen house-drain be removed, its site cleaned, disinfected and filled with fresh earth, and the premises separately and independently connected with the street sewer by and through extra heavy iron pipe, at least six inches in diameter, with all joints properly lead calked.

C. That there are holes in the iron house-drain in cellar.

R. That the holes in iron drain in cellar be closed with iron bands.

C. That the house-drain is defective (or obstructed) and sewage leaks therefrom into the cellar.

R. That the house-drain be repaired so as not to leak (or that all obstructions be removed rom the house-drain, and all defects therein be properly repaired).

C. That the yard (or front or rear area) is not properly graded or drained, and surface water stagnates thereon.

R. That the yard (etc.) be properly graded and drained so that all surface water shall be discharged into a properly trapped, sewer connected drain (or into the hydrant sink, etc.).

C. That the pavement of the yard is broken and sunken, so that surface water stagnates thereon.

R. That the pavement of the yard be properly repaired.

C. That the (front or rear) leader leaks, and the escaping contents fall into the —— (or run into the cellar, or render the subjacent wall wet and unhealthy).

R. When the foundation walls of houses, or walls are made wet by a defective leader, refer to Fire Department.

C. That the rear leader (or leader of rear extension, etc.), is not trapped, and foul odors therefrom enter the windows of (location).

R. That the rear leader (or leader of rear extension) be trapped at its base.

C. That the (front or rear) eaves gutter leaks (or is badly adjusted) so that roof water overflows into ——.

R. Refer to Fire Department.

C. That the roof leaks, rendering the upper rooms damp.

R. That the roof be repaired so as not to leak.

C. That the cellar is used as a place of lodging and sleeping; that the ceiling is on a level with the sidewalk (or below, or only six inches above); that there is no sub-cellar; that the ceiling is not seven feet above the floor; that it is ventilated and lighted only by (give details); that it is damp, dark, and unfit for human habitation.

R. That the cellar be vacated as a place of lodging and sleeping.

C. That the cellar (areas, halls, etc.) is filthy with dirt, garbage and rubbish (or sewage, etc.).

C. That the privy-house is filthy and offensive with night-soil, etc.

R. That the cellar (or yard, privy-house, etc.) be cleaned and disinfected.

C. That the walls and ceilings of the halls (front or rear, or both, or of apartments) are dirty.

R. That the walls and ceilings (halls, rooms, etc.) be cleaned and whitewashed.

C. That the chimney (or soil-pipe, etc., give location), rises to a level with —— story of —— and smoke and coal gas (or offensive odors) therefrom enter the (front, rear or side) windows of ——.

R. That the nuisance caused by the escape of smoke and coal gas from chimney of —— (or offensive odors from soil-pipe) into —— be abated.

C. That the ceiling of —— room (or of hall, etc.) is loose and threatens to fall, a part having already fallen.

R. That the ceiling of (rooms, halls, etc.) be properly repaired.

C. That the inner bed-rooms have no windows opening into the hall, or into the adjoining room, as required by the Tenement-house Act.

R. That the inner bed-rooms be ventilated by means of a window not less than three square feet in area, opening into the hall, and another of equal area opening into the front (or rear) room.

C. That the stable floor and space beneath is not properly drained, and said floor is defective, and the leakage through the same renders the earth beneath very filthy and offensive.

R. That all offensive earth be removed from beneath the stable floor, the ground space cleaned, disinfected, cemented, and so graded and drained that all surface water and liquid matter shall be discharged into the street sewer by and through a properly trapped, extra heavy iron drain; that the floor of horse stalls be provided with a valley drain properly trapped and connected with the sewer-connected drain.

C. That the vacant lot is constantly wet with surface water, which stagnates thereon.

R. That the vacant lot be filled with fresh earth one foot above the level of standing water thereon (where there is no sewer in street). That the vacant lot be properly graded and drained, so that all surface water shall be discharged into the street sewer, through a properly trapped drain (where there is a sewer in street).

The house-drain extends through the front wall of the house; the house sewer from the front wall to street sewer.

During the past year, the number of inspections and reinspections made by the Sanitary Inspectors was 59,515 as against 39,202 in 1890, resulting in 13,222 complaints and orders for the abatement of nuisances, as against 9,536 in 1890.

The subjects of the orders referred to are as follows:

Apartments cleaned, disinfected or ventilated.

Areas connected with sewer, cleaned, disinfected, pavements of, graded and repaired.

Balusters of stairs repaired.

Basements cleaned and disinfected.

Business of lard-rendering, slaughtering, gut-cleaning, fat-rendering, storing bones, manufacturing fertilizers, smoking sausages, or storing rags discontinued.

Buildings cleaned or inclosed.

Ceilings cleaned, whitewashed or repaired.

Cellars cleaned, made water-tight, cemented, connected with sewer, ceilings plastered, doors repaired.

Cellars vacated as places of living or sleeping.

Cesspools disinfected, emptied, cleaned, filled, constructed, repaired or covered.

Chimneys repaired, extended, cleaned, or obstructions removed.

Cisterns disinfected, emptied, cleaned, covered or provided.

Clothes-poles reset.

Coops cleaned, disinfected or removed.

Cows removed.

Dogs removed.

Drains cleaned, constructed, covered, repaired, removed, obstructions in removed, or connected with sewer.

Excavations cleaned, repaired, relaid, graded or connected with sewer.

Fences repaired or constructed.

Fire-escapes cleaned or obstructions removed.

Fixtures trapped and waste-pipes therefrom connected on outlet side of water-closet traps.

Flashings provided over woodwork of sinks.

Floors cleaned, repaired, relaid, graded, cemented or connected with sewer.

Fowls removed.

Gas-mains and pipes repaired and gas provided in dark halls and rooms.

Garbage and ash receptacles provided, removed, cleaned and disinfected.

Gutters (house or street) provided, repaired, cleaned, disinfected, obstructions in removed, connected with street sewer, street gutter or cesspool.

Halls cleaned and filthy or defective floor coverings removed.

House-drains provided with running traps and fresh-air inlets.

Hydrants repaired, constructed, removed.

Housekeepers provided for tenements.

Ice-boxes connected with properly trapped, water supplied, open sinks.

Joints closed or calked with lead.

Leaders repaired, provided, extended, adjusted, connected with sewer, street gutter or privy vault.

Lodging-houses discontinued.

Lots (vacant) cleaned, disinfected, inclosed, filled, graded, connected with sewer or street gutters.

Manure vaults, boxes or receptacles disinfected, emptied, cleaned, covered, filled, constructed or lined.

Manholes covered and repaired and removed.

Offensive trades and business discontinued or removed.

Pigeons removed.

Pipe (soil, supply, vent, waste, sewer or iron) provided.

Pipe (soil, waste or supply) repaired, trapped, removed, extended, graded, cemented, ventilated or repaired, and openings closed and obstructions removed.

Privy vaults disinfected, emptied, cleaned, ventilated, lined with brick, repaired, cemented, constructed, filled or removed.

Privy-houses cleaned, disinfected, repaired, constructed, removed, adjusted to vaults, or seats of, provided with cover.

Pumps provided or repaired.

Rabbits removed.

Railings provided or repaired.

Roofs repaired or cleaned, and roof bulkheads repaired.

Roof tanks provided, cleaned or covered.

School-sinks provided, cleaned or repaired.

Sewer-pipes provided, repaired, obstructions in removed, trapped or openings inclosed.

Sinks provided, repaired, cleaned, removed, flushed, connected with street sewer or street gutters.

Sidewalks cleaned, repaired, graded, flagged or obstructions in removed.

Skylights repaired and provided.

Slaughter-houses cleaned, repaired or connected with sewer.

Smoke-pipes extended or repaired.

Soil-pipes discontinued as rain leaders.

Spaces cleaned, disinfected, graded, cemented, filled or connected with sewer.

Stables cleaned, removed, repaired or connected with street sewer.

Stagnant water removed.

Stairways cleaned or repaired.

Trees removed.

Urinals cleaned, disinfected, repaired, flushed, connected with sewer, removed or floor covered with zinc.

Walls cleaned, whitewashed or repaired.

Wash-roofs repaired.

Wash-trays trapped, provided.

Water-closets repaired, cleaned, disinfected, flushed, constructed, ventilated or connected with street sewer.

Water-closet pans adjusted to preserve water-seal, bowls burned out and re-tarred, cisterns provided.

Window sashes repaired and glazed.

Yards cleaned, disinfected, filled, graded, paved, grade of pavements repaired, relaid in cement or connected with street sewer.

TENEMENT-HOUSE INSPECTION.

A tenement-house, under the statute, includes every building or portion thereof which is rented, leased, let or hired out, to be occupied as a home or residence of three or more families living independently and doing their cooking upon the premises, or by more than two families upon any floor so living and cooking, but having a common right in the halls, stairways, yards, water-closets, or some of them. Under the provisions of chapters 84 and 288 of the act of 1887, it became the duty of the Board of Health to inspect, semi-annually, all of this class of houses, and, for the purpose of enforcing the provisions of these acts and the several sections of the Sanitary Code in relation thereto, the Board of Police have detailed to the service of the Board of Health

one Sergeant, one Roundsman and forty-three Policemen (men of long experience in the Police Force of this city), who are known as the Sanitary Company of Police. For the purpose of this inspection the city is divided into 31 districts, and a Sanitary Policeman assigned to each, who is directed to make an inspection of each of the tenement-houses within his district, at least twice in each year, the first inspection commencing in the early part of January and the second in August. Each officer is furnished with a memorandum book in which to enter the street and number of each house, date of inspection, and whether or not any cause for complaint was found. He is also instructed to secure, by personal direction, the abatement of all minor nuisances he may discover. Upon the event of failing to do so, he is to make a written complaint of the same, which is forwarded to the Board for an order. If the subject-matter indicates that he does not possess the technical knowledge to comprehend a nuisance existing and the remedy for it, then the report is referred to a Sanitary Inspector who makes an investigation and returns a complaint, upon which an order is issued by the Board.

The improvement of the tenement-houses of this city, and thereby the condition of those residing therein, is regarded by the Board as one of the most important subjects that has engaged its attention for a number of years; and the constant inspection by the officers of this Board, under the provisions of the Tenement-house Law, must result in a decrease in the rate of mortality. In their inspections the Sanitary Police are instructed to ascertain the following facts in connection with each house:

Location.

Number of families.	Housekeeper on premises.
Number of occupants.	Owner on premises.
Privy accommodations—number of sittings.	

Cellars if Occupied for Dwelling Purposes.

Whether the floor is water-tight.	Whether the ceiling is plastered.

Yards.

Whether properly graded.	Whether sewer connected.

Front Areas.

Whether graded.	Sanitary condition.
Whether sewer connected.	

Waste Pipes.

Whether joints are connected with cement or lead.	Whether trapped.
	Whether ventilated two feet above the roof.

Soil Pipes.

Whether the joints are connected with cement or lead.	Whether trapped.

General Inspection.

Cellars.
Stairs and balusters throughout the house.
Walls and ceilings of halls and rooms throughout the house.
Floors of rooms and halls throughout the house.
Slop-sinks, whether trapped and ventilated.
Wash-basins, whether trapped and trap ventilated.
Bath-tubs, whether trapped and trap ventilated.
Croton supply pipes.
Roof.
Wash-roof.
Skylights.
Leaders.
Eaves-gutter.
Chimneys.
Fire-escapes.
Water-closets, whether trapped and trap ventilated.
Privy-vaults.
School-sinks.
Privy houses.
Cesspools.
Urinals, whether properly finished.
Clothes-poles.
Fences.
Hydrants in yard.
Air-shafts.

Ash Receptacles.

Whether sufficient.
In sanitary condition.
Whether kept within stoop-line.

The entire number of inspections of tenement-houses during the year was 175,027. This regular and frequent inspection has resulted in an improvement of the sanitary condition of this class of dwellings.

The semi-annual inspection of tenement-houses, made pursuant to the requirements of the Tenement-house Law during the year, and completed on the 28th day of September, 1891, developed the fact that there were:

Front houses	34,967
Rear houses	2,391
In all	37,358

Occupied by 276,565 families, composed of—

Children under 5 years of age	160,708
Persons over 5 years of age	1,064,703
In all	1,225,411

There were in these houses 7,310 adult and 249 children "home-workers," divided as follows:

Report of Home-workers in Tenement-houses.

Children.	Occupation.	Adults.	Children.	Occupation.	Adults.
..	Apron-makers	3	..	Milliners	21
..	Artist	1	..	Musical instruments	4
..	Artificial flowers	19	..	Mouse-trap makers	4
..	Button-makers	7	..	Machinists	2
..	Basket-maker	1	4	Necktie-makers	28
..	Bookbinders	6	..	Pocketbook-maker	1
4	Barbers	72	..	Piano trimmings	2
..	Buttonhole-makers	31	..	Paper-box makers	6
..	Brush-maker	1	..	Pipe-maker	1
..	Cap-makers	73	..	Quilters	3
..	Cap-tip makers	4	..	Scroll-sawyer	1
..	Cloak-makers	81	..	Slipper-makers	6
..	Cabinet-makers	9	..	Surgical instruments	2
65	Cigar-makers	948	2	Shoe-fitters	14
..	Confectioners	2	..	Suspender-makers	7
..	Doll maker	1	..	Shirt-makers	228
39	Dressmakers	495	..	Shoemakers	297
..	Embroidery	7	..	Silversmiths	5
..	Feather-curlers	3	135	Tailors	4,558
..	Fur-sewers	21	..	Upholsterers	8
..	Glove-makers	2	..	Worsted knitting	2
..	Gold embroidery	1	..	Watchmakers	8
..	Ladies' underwear	4	..	Wood-carvers	6
..	Laundry	222	..	Wig-maker	1
..	Locksmith	1	249	Total	7,310

In addition to the duty of house-to-house inspection, the Sanitary Police are requred to make night inspections of tenement-houses to prevent overcrowding. Under the rule established by the Board of Health, the question of overcrowding has special reference to and should be understood to be such overcrowding as is dangerous or prejudicial to the health of the occupants.

A rule has been established fixing 400 cubic feet for each adult and 200 cubic feet for each child, as the minimum air space required. Memorandum is made by the Inspector of the number of persons found in each apartment at the time of the inspection, and measurements taken the following day. In determining the amount of cubic feet which each person has in a given room, the Inspector has only to apply the ordinary rules of measurement.

54,643 inspections were made during the year as against 23,885 in 1890, and 1,745 orders issued as against 891 in 1890, resulting in a reduction of occupants to the number of 3,350 as against 1,555 in 1890.

Lodging-houses.

Under the provisions of the Sanitary Code a "lodging-house" shall be taken to mean and include any house, building or portion thereof in which persons are harbored or received or lodged for a single night, or for less than one week at a time. Lodging-houses in this city are maintained under permits issued by the Board of Heath, which are based upon certain sanitary rules as to light, ventilation, plumbing, etc.

During the year 645 night inspections were made for the purpose of examining the beds and bedding as to their cleanliness, also as to water-closet accommodations, and to ascertain generally whether the premises were kept in a good sanitary condition.

These houses in the past were nearly all located south of Fourteenth street and east of Broadway, but it is noticed in the past year that there has been a disposition gradually to move with the march of improvement to the upper portion of the city.

At the close of the year there were outstanding permits for 116 of these houses, as against 146 at the end of 1890, accommodating 14,232 lodgers as against 14,736 in 1890. These houses are distributed as follows:

West of Broadway.			East of Broadway.		
Location.	Lodgers.	Houses.	Location.	Lodgers.	Houses.
South of Fourteenth street	1,230	14	South of Fourteenth street	10,398	83
Fourteenth street to Fifty-ninth street	288	3	Fourteenth street to Fifty-ninth street	1,236	7
Fifty-ninth street to One Hundredth street	....	..	Fifty-ninth street to One Hundredth street	311	3
North of One Hundredth street	....	..	North of One Hundredth street	769	6
Totals west of Broadway	1,518	17	Totals east of Broadway	12,714	99

Total number of houses	119
Total number of lodgers	14,232

Classified as follows:

Houses 50 lodgers and under	31
Houses over 50 and under 100 lodgers	18
Houses over 100 and under 200 lodgers	47
Houses over 200 and under 300 lodgers	12
Houses 300 and over	8
Total	116

SLAUGHTER-HOUSES.

Daily inspections were made during the year of each of the slaughter-houses in the city, to ascertain their general condition, drainage, etc., and whether or not the buildings occupied for this purpose were thoroughly cleansed and purified, and if all offal, blood and other offensive and refuse matter had been removed. In the case of any sanitary defect existing, orders were at once issued to remedy the same.

The total number of permits outstanding at the close of the year was:

For slaughtering cattle and sheep	69
For slaughtering hogs	9
In all	78

In addition to which there were three permits for houses for the slaughtering of chickens.

The buildings used for slaughtering purposes (thirty-eight in all) are situated between Forty-third and Forty-sixth streets, from First avenue to the East river, and west of Eleventh avenue to the North river, between Thirty-ninth and Forty first streets, and at Fifty-eighth street and North river.

Among the many improvements in this line of business during the year, was the erection of an abbatoir on First avenue, between Forty-fourth and Forty-fifth streets, and the demolition of the old-fashioned houses between Forty-third and Forty-fourth streets, and First avenue and the East river, on the site of which a model abbatoir is now in process of erection.

It is evident from these and other changes that have taken place in the past few years, that the business is gradually being centered in the larger establishments, and as at present conducted, under the careful supervision of the inspectors of this Department, is as free from offense from a sanitary point of view, as its nature will permit.

STABLES AND STABLE MANURE.

Section 100 of the Sanitary Code, as amended, provides that:

"Whenever there shall be a cart-load of unbaled manure on any premises, it shall be immediately removed as herein directed, the carts or wagons being loaded within the premises and not upon the street or sidewalk. It shall not be lawful to remove manure from any stable or premises, or to cart the same within the city limits without a permit from the Board of Health, unless the manure be pressed and baled in a manner satisfactory to the Board of Health, or be in tightly covered carts or wagons of a construction approved by the Board of Health, and be removed in a manner not in any way offensive or to cause any nuisance. Every such manure cart or wagon must have a permit in writing from the Board of Health, and be used in accordance with the conditions of such permit, and not otherwise. All manure when transported through the streets must be covered and secured so as to prevent offensive odors escaping, and drippings upon the streets, or be baled or enclosed in tightly covered barrels or receptacles, approved by the Board of Health. The bales, barrels or other receptacles above mentioned shall not be opened, or the carts and wagons unloaded, within the city limits, except upon the conditions of a permit in writing from the Board of Health, and at such docks or places remote from dwellings as shall be approved by the Board of Health, and to which a permit in writing

for such use shall have been previously granted by the Board of Health. When baled, manure shall be removed every ten days, or sooner, if required by the Board of Health. No manure shall be allowed to be thrown upon, or to fall or remain in any street, sidewalk or ground near such stable. No manure-vault under the sidewalk shall be built or used. No manure-vault or receptacle outside of a stable shall be built or used on any premises, except pursuant to the terms of a permit granted therefor by the Health Department."

During the year the Board has continued to follow the same line of policy as that inaugurated in 1890, and have succeeded in causing to be discontinued the use of manure-vaults outside of stables, and those in the yards of stables whenever reported as a nuisance, as well as the practice of loading loose manure in front of stables, and the removal of manure from vaults through openings in the sidewalks and from areas. It has continued to enforce the regulations requiring all manure carts to be tight and tightly covered. Careful inspections have been made from time to time of stables, and orders issued when necessary for the improvement of the same; in addition to which, a complete census was taken of the number of stables, and of the number of horses therein contained.

Total number of stables	4,297
Total number of horses	62,208
Number of stables where manure is kept in barrels	854
Number of horses where manure is kept in barrels	4,360
Number of stables where manure is baled	19
Number of horses where manure is baled	643
Number of stables where manure is burned	17
Number of horses where manure is burned	296
Number of stables where manure is kept inside	2,276
Number of stables where manure is kept outside	1,131

PLUMBING AND VENTILATION.

This Division is charged with the inspection of the plumbing and drainage of all new and reconstructed buildings, and of the light and ventilation of tenement-houses. For the purpose of inspection, the city is divided into twenty-five districts (as mentioned under the head of Sanitary Inspection), one Inspector being assigned to each district. Under the provisions of chapter 908 of the Laws of 1867, as amended in 1873, no tenement-house can be erected in this city until the plans for light and ventilation have been approved of by this Board, nor can the plumbing and drainage (see chapter 450, act of 1881) of any building in the city be executed until the plans have had the approval of this Department. The duty of the Inspectors of this Division is to carefully inspect from time to time during its progress, each building in his district, and see that the work is being executed according to the plans and specifications approved of by the Department, and also to attend to the special sanitary work of the district. This constant and careful supervision by the Inspectors of this Division in respect to light and ventilation of tenement-houses and the plumbing and drainage of all new buildings, has insured improved conditions conducive to the health and comfort of the people. During the past year the work performed by these Inspectors was as follows:

Inspections under plumbing law	43,711
Inspections under tenement-house law (light and ventilation	12,109
Inspection of lodging-houses (for permits)	7
Number of violations of plumbing laws reported	1,018
Number of violations of tenement-house law	417

DIVISION OF OFFENSIVE TRADES AND FOOD INSPECTION.

This division is in charge of a Chief Chemist and an Assistant Chemist, and is charged with the inspection of milk, fish, fruit and food supplies, the analytical work of the Department, and the inspection of all kinds of offensive trades.

Milk Inspection.

Among the many articles of human food, none plays so important a part as milk, especially for infants; consequently, much time and labor is devoted to the detection and prevention of its adulteration.

For the purpose of milk inspection the city is divided into seven districte, to each of which is assigned an Inspector and a Sanitary Officer, whose duty it is to inspect at least once a week the milk sold in each of the stores in his district, and from time to time to make early morning inspections at the several ferries and depots where milk is received in the city. These inspections are principally directed to two forms of adulteration:

First—The skimming of milk.

Second—The adulteration with water.

The tests applied are usually that of color, taste, smell and the lactometer. When the milk is found to be either skimmed of the cream or adulterated with water, samples are taken for analysis and the milk emptied into the street.

Inspections are made during the year of all cows kept within the limits of the city, to ascertain as to their healthy condition and the sanitary condition of the premises in which they are kept.

During the year the attention of the Board was called to the fact that milk was being sent to the city from a herd of cows supposed to be infected with tuberculosis, and the services of the Veterinarian and one of the Meat Inspectors was called in, and a careful inspection of all of the milch cows in the herd made, resulting in the quarantining of the entire herd.

Meat, Fish, Food and Fruit Inspection.

For the purpose of the above inspection there are employed in the Department four Meat, one Fish and two Fruit and Food Inspectors, upon whom a great responsibility rests, for this is a subject of grave importance to the public health.

During the year all stores where meat was sold were inspected to ascertain the quality of the meat sold, the cleanliness of the premises and whether or not the refrigerators discharged into

properly trapped, sewer connected, water supplied open sinks, so as to prevent the escape of sewer gas. Tri-weekly inspections were made of all the public markets where meat was sold, and daily inspections of the public fish markets, to ascertain not only as to their sanitary condition, but as to the quality of the meat and fish offered for sale.

Daily inspections were made of the commission houses and stores where all kinds of fruit, vegetables and other food supplies were offered for sale, to ascertain the condition thereof.

The result of the work of the Inspectors charged with this duty, as compared with the previous year, was as follows:

	1890.	1891.
Number of inspections of meat and fish	66,309	67,929
Number of inspections of fruit and food	35,888	42,018
Number of pounds of meat and fish condemned and seized and sent to the offal dock	1,200,345	1,613,707
Number of pounds of fruit and food condemned and seized and sent to the offal dock	1,056,076	1,343,919

Offensive Trades.

During the year the Inspectors of Offensive Trades were engaged in the daily inspection of slaughter-houses and gas-works, the semi-weekly inspection of rendering and fertilizing establishments, and generally all manufacturing industries which were located in the more thickly settled part of the city, and which were not only offensive to smell, but because of their nature were deemed to be detrimental to health. Frequent inspections were made of establishments likely to become nuisances, and when necessary changes were caused to be made in the manner of conducting the business.

During the year 29,837 inspections were made as against 22,200 in 1890, resulting in 978 complaints as against 1,382 in 1890.

The report of the Chemist shows in detail the different classes of offensive trades inspected during the year.

CROTON WATER.

During the year the Chemist continued to make weekly analyses of Croton water, to ascertain whether or not impurities were therein contained which would be likely to affect the public health. Water for this purpose was taken from the hydrant at the corner of Mott and Bleecker streets.

The following analyses for the weeks ending June 5 and July 31, are a fair average of the condition of the Croton water to the latter date.

Analysis of Croton Water for Friday, June 5, 1891. Sample taken from Hydrant corner of Mott and Bleecker Streets.

	Results Expressed in Grains per U. S. Gallon of 231 Cubic Inches.	Results Expressed in Parts by Weight in One Hundred Thousand.
Appearance	Slightly turbid	Slightly turbid.
Color	Light yellow brown	Light yellow brown.
Odor (heated to 100° Fahr.)	Marshy	Marshy.
Chlorine in Chlorides	0.110	0.189.
Equivalent to Sodium Chloride	0.181	0.311.
Phosphates	None	None.
Nitrites	"	"
Nitrogen in Nitrates and Nitrites	0.0096	0.0165.
Free Ammonia	Trace	Trace.
Albuminoid Ammonia	0.0058	0.0100.
Hardness equivalent to Carbonate of Lime — Before boiling	3.190	5.47.
Hardness equivalent to Carbonate of Lime — After boiling	3.190	5.47.
Organic and Volatile (loss on ignition)	1.108	1.90.
Mineral matter (non-volatile)	4.432	7.60.
Total sol ds (by evaporation)	5.540	9.50.

Analysis of Croton Water for Friday, July 31, 1891 Sample taken from Hydrant corner of Mott and Bleecker Streets.

	Results Expressed in Grains per U. S. Gallon of 231 Cubic Inches.	Results Expressed in Parts by Weight in One Hundred Thousand.
Appearance	Slightly turbid	Slightly turbid.
Color	Yellowish brown	Yellowish brown.
Odor (heated to 100° Fahr.)	Marshy	Marshy.
Chlorine in Chlorides	0.110	0.189.
Equivalent to Sodium Chloride	0.181	0.311.
Phosphates	None	None.
Nitrites	"	"
Nitrogen in Nitrates and Nitrites	0.0072	0.0123.
Free Ammonia	Trace	Trace.
Albuminoid Ammonia	0.0087	0.0150.
Hardness equivalent to Carbonate of Lime — Before boiling	2.484	4.26.
Hardness equivalent to Carbonate of Lime — After boiling	2.484	4.26.
Organic and Volatile (loss on ignition)	0.933	1.60.
Mineral matter (non-volatile)	2.624	4.50.
Total solids (by evaporation)	3.557	6.10.

Remarks—Temperature at hydrant, 71 degrees Fahr.

The following analyses, made for the weeks ending August 7, 14, 21 and 28, disclosed the presence of nitrites, indicative of a marked deterioration in the sanitary quality of the water, and determined the Board to cause to be made a careful inspection of the Croton water-shed, which would lead to the discovery of the causes of the changed condition of the water:

Analysis of Croton Water for Friday, August 7, 1891. Sample taken from Hydrant corner of Mott and Bleecker Streets.

	Results Expressed in Grains per U. S. Gallon of 231 Cubic Inches.	Results Expressed in Parts by Weight in One Hundred Thousand.
Appearance	Turbid	Turbid.
Color	Yellowish brown	Yellowish brown.
Odor (heated to 100° Fahr.)	Marshy	Marshy.
Chlorine in Chlorides	0.110	0.189.
Equivalent to Sodium Chloride	0.181	0.311.
Phosphates	None	None.
Nitrites	Very faint trace	Very faint trace.
Nitrogen in Nitrates and Nitrites	0.0192	0.0329.
Free Ammonia	Trace	Trace.
Albuminoid Ammonia	0.0064	0.0111.
Hardness equivalent to Carbonate of Lime — Before boiling	2.508	4.30.
Hardness equivalent to Carbonate of Lime — After boiling	2.508	4.30.
Organic and Volatile (loss on ignition)	1.166	2.00.
Mineral matter (non-volatile)	2.508	4.30.
Total solids (by evaporation)	3.674	6.30.

Remarks—Temperature at hydrant, 71 degrees Fahr.

Analysis of Croton Water for Friday, August 14, 1891. Sample taken from Hydrant corner of Mott and Bleecker Streets.

	Results Expressed in Grains per U. S. Gallon of 231 Cubic Inches.	Results Expressed in Parts by Weight in One Hundred Thousand.
Appearance	Turbid	Turbid.
Color	Yellowish brown	Yellowish brown.
Odor (heated to 100° Fahr.)	Marshy	Marshy.
Chlorine in Chlorides	0.110	0.189.
Equivalent to Sodium Chloride	0.181	0.311.
Phosphates	None	None.
Nitrites	"	"
Nitrogen in Nitrates and Nitrites	0.0144	0.0247.
Free Ammonia	Trace	Trace.
Albuminoid Ammonia	0.0023	0.0040.
Hardness equivalent to Carbonate of Lime — Before boiling	2.508	4.30.
Hardness equivalent to Carbonate of Lime — After boiling	2.508	4.30.
Organic and Volatile (loss on ignition)	1.166	2.00.
Mineral matter (non-volatile)	2.683	4.60.
Total solids (by evaporation)	3.849	6.60.

Remarks—Temperature at hydrant, 72 degrees Fahr.

Analysis of Croton Water for Friday, August 21, 1891. Sample taken from Hydrant corner of Mott and Bleecker Streets.

	Results Expressed in Grains per U. S. Gallon of 231 Cubic Inches.	Results Expressed in Parts by Weight in One Hundred Thousand.
Appearance	Slightly turbid	Slightly turbid.
Color	Very light yellowish brown.	Very light yellowish brown.
Odor (heated to 100° Fahr.)	Faint marshy	Faint marshy.
Chlorine in Chlorides	0.120	0.206.
Equivalent to Sodium Chloride	0.198	0.339.
Phosphates	None	None.
Nitrites	Very faint trace	Very faint trace.
Nitrogen in Nitrates and Nitrites	0.0064	0.0111.
Free Ammonia	0.0009	0.0015.
Albuminoid Ammonia	0.0090	0.0145.
Hardness equivalent to Carbonate of Lime — Before boiling	2.601	4.46.
Hardness equivalent to Carbonate of Lime — After boiling	2.601	4.46.
Organic and Volatile (loss on ignition)	0.933	1.60.
Mineral matter (non-volatile)	3.324	5.70.
Total solids (by evaporation)	4.257	7.30.

Remarks—Temperature at hydrant, 76 degrees Fahr.

Analysis of Croton Water for Friday, August 28, 1891. Sample taken from Hydrant corner of Mott and Bleecker Streets

	Results Expressed in Grains per U. S. Gallon of 231 Cubic Inches.	Results Expressed in Parts by Weight in One Hundred Thousand.
Appearance	Turbid	Turbid.
Color	Light yellowish brown	Light yellowish brown.
Odor (heated to 100° Fahr.)	Marshy	Marshy.
Chlorine in Chlorides	0.110	0.189.
Equivalent to Sodium Chloride	0.181	0.311.
Phosphates	None	None.
Nitrites	Very faint trace	Very faint trace.
Nitrogen in Nitrates and Nitrites	0.0186	0.0239.
Free Ammonia	0.0006	0.0010.
Albuminoid Ammonia	0.0069	0.0120.
Hardness equivalent to Carbonate of Lime — Before boiling	2.630	4.51.
Hardness equivalent to Carbonate of Lime — After boiling	2.630	4.51.
Organic and Volatile (loss on ignition)	1.458	2.50.
Mineral matter (non-volatile)	2.916	5.00.
Total solids (by evaporation)	4.374	7.50.

Remarks—Temperature at hydrant, 74 degrees Fahr.

This inspection was commenced early in August, and continued through until the latter part of September, and covered Sodom and Bog Brook Reservoirs, Middle Branch Reservoir, Boyd's Corners Reservoir, the east, middle and west branches of the Croton river below the reservoir, Lakes Gleneida and Gilead, and their tributaries, also Lake Mahopac, the Muscoot, Titicus and Cross rivers, and the Croton river from the junction of its branches to Croton Lake to the Croton Dam. Samples were taken for analysis at different points in the territory inspected.

Accompanying this will be found the Chemist's detailed report of the inspection, with a detailed memorandum of nuisances found to exist on the water-shed, and the result of more than eighty analyses that were made.

METEOROLOGY.

The mean temperature of the year as furnished by Daniel Draper, Ph. D. (in charge of the Meteorological Observatory at Central Park), was 58.80°, the mean reading of the barometer was 29.961, and the prevailing direction of the wind was west-northwest.

The quantity of rain that fell during the year amounted to 39.55 inches, the quantity of snow 17.37. Rain fell on 109 and snow on 9 different days, the total duration of rain being 30 days 9 hours and 25 minutes, and of snow 4 days 15 hours and 30 minutes.

DEAD ANIMALS AND OFFAL.

Dead animals are removed by the contractor, Thomas F. White, from the streets of the city to the offal dock at Thirty-seventh street, North river, and, with all offal which may be delivered at the same point, are conveyed thence to Barren Island for final disposition. The means of removal from the streets are by tightly covered wagons of improved construction, rendering the contents unobjectionable both to sight and smell. All night-soil collected by licensed scavengers is delivered at Rivington street, One Hundred and Fifty-seventh street and West Thirty-seventh street, on board of boats especially constructed for that purpose, and it is then conveyed by the same contractor to Barren Island for final disposition. The manner in which the night-soil is handled is unobjectionable, but in the near future this handling is likely to be dispensed with almost entirely, as, under orders issued by the Board, privy-vaults in this city south of the Harlem river will soon be abolished. It is proper here to note the fact that below the above point, by orders of the Board, they have been reduced from about ten thousand in 1885 to less than eight hundred at the close of the present year.

The number of dead animals removed from the streets, and the quantity of offal, etc., removed from the markets and slaughter-houses, by the contractor, during the year 1891, was:

Cats and dogs from streets	20,945	Goats	155
Horses	8,424	Cows	122
Dogs from public pound	7,301	Colts	21
Calves	3,029	Mules	10
Quarters of veal	3,020	Quarters of beef	74
Barrels of poultry	1,004	Hogs and pigs	55
Sheep	576	Boxes of offal	27,450
Quarters of mutton	290	Boxes of fish	4,969

Barrels of blood	3,208	Barrels of sausages	19
Pounds of sausages	350	Boxes of game	9
Hams	262	Steers	7
Crates of grapes	235	Barrels of game	6
Boxes of tenderloin	71	Bulls	5
Sides of bacon	20	Cases of game	3

VITAL STATISTICS.

The necessity of the law creating a Bureau of Records, in which is to be carefully collected and arranged a complete system of registration of births and marriages and deaths, must be apparent to all, not only from their use in furnishing valuable information for the investigation of the causes of diseases, but from their importance in matters pertaining to the civil and social condition and relations of the people. The chief vital statistics bearing upon the public health are the determination of the birth-rate and of the general death-rate, of deaths according to sex, age and disease, as to the whole of the city, and as to particular and special localities thereof.

Births.

During the past year there were filed for record 46,904 births, showing an increase over the year 1890 of 7,634, this number being not only very largely in excess of those returned in any former year, but also for the first time since the organization of the Department exceeded the number of deaths, notwithstanding the high mortality of the year. In the month of June a careful examination of the record of the deaths of children under six months of age was made, with a view of ascertaining whether certificates of their birth had been filed, resulting in developing the fact that quite a number of physicians and midwives had failed to make the returns required by law. Prosecutions were commenced and general notice given through the medium of circulars and the public press, resulting in an increase of registration commencing with the first week in July, which has continued through the balance of the year. While the above is extremely gratifying, and acknowledgments are due to the physicians and midwives who have so well responded to the requirements of the law, it must be confessed that the record is far from complete, and it is the intention of the Commissioners to use every means within their power to enforce upon physicians and midwives the necessity of complying strictly with the letter of the law in registering the same at the proper time.

The following table shows by comparison the number of births reported and recorded during the past six years:

1886	31,319	1888	36,136	1890	39,250
1887	34,023	1889	37,527	1891	46,904

Marriages.

During the year there were filed for record 15,764 marriages, showing an increase over the year 1890 of 772. This gives a marriage rate of 18.75 per cent., which is much higher than that of any country in Europe, and is believed to be nearly correct. The record of marriages takes notice only of such as are accompanied by some ceremony performed by one authorized by law to solemnize the same.

The following table shows by comparison the number of marriages reported and recorded during the past six years:

1886	12,216	1888	14,533	1890	14,992
1887	13,740	1889	14,400	1891	15,764

Deaths.

In comparison with the imperfect record of births, it is believed, owing to our rigid system of interments, that the record of deaths is as perfect as that of any city in the world.

WEEKLY REPORT.

With the beginning of the year an important change was made in the form of the weekly report, which up to that time had consisted merely of the statistics of births, marriages and deaths. Its scope was enlarged, so as to include a resumé of the work done during the week by all branches of the Department, and its form changed from a single sheet to a neat pamphlet, containing statistics which enable the reader to follow the rise or fall of the death-rate for three months previous, the increase or decrease in any locality of epidemics, the results of the hospital service, the inspection of old and new buildings, of foods and offensive trades, and of contagious diseases in men and animals, with an analysis of the Croton water, the meteorology of the week, and a brief account of the executive action of the Board.

These improvements in the weekly report have elicited hearty commendation from many sources, and have led to a similar modification of the reports of several other cities of the United States, which have indicated in this silent but expressive way an appreciation of their value and importance.

SUITS FOR ENFORCEMENT OF ORDERS.

In enforcing the orders issued by the Sanitary Superintendent and in interpreting sanitary laws with discreet judgment, the office of the Attorney continues to render valuable aid and assistance to the Board. In the majority of cases orders issued by the Board through the Sanitary Superintendent are complied with, but when there is a disposition to evade them the orders are referred to the Attorney, and a notice from him is usually sufficient to secure a prompt compliance under these circumstances.

Of 11,676 orders referred during the year by the Sanitary Superintendent to the Attorney for prosecution, 8,805 orders were complied with upon receipt of notice from him of his intention to commence suit.

The following statement shows in detail the work performed through the medium of this office during the year:

Number of orders received for prosecution	11,247	
Number of orders pending December 31, 1890	429	
		11,676
Attorney's notices issued on orders received in 1891	11,247	
Other Attorney's notices	3,851	
		15,098
Nuisances abated before suit	8,805	
Orders extended or in course of prosecution	436	
Number of civil actions commenced	2,435	
		11,676

The actions are classified as follows:

For violation of sanitary ordinances	199	
For violation of tenement-house law	2,236	
		2,435
Civil actions pending December 31, 1890	208	
Actions commenced in 1891	2,435	
		2,643
Civil actions discontinued for cause (compliance with orders, etc.) by the Board of Health	1,914	
Judgments rendered in favor of Department	293	
Non-suits	....	
Action dismissed, non-service of summons	1	
Actions pending December 31, 1891	435	
		2,643

Disposition of Judgments.

Total number of judgments		293
Judgments opened by the several courts on payment of costs	60	
Judgments opened by the several courts without costs	80	
Judgments upon which execution has been issued	153	
		293
Executions issued		200
Judgments, criminal courts, violations sanitary ordinances		228
Moneys collected and paid to City Chamberlain		$540 00
Fines imposed in criminal courts		$5,122 00
Total fines, 1891		$5,122 00

As follows:

Meat and fish	$80 00	
Milk fines	4,436 00	
Manure, swill, ashes nuisance, and plumbing	314 00	
Section 197, Sanitary Code, live fowls	197 00	
Lodging-house, cellar and overcrowding	45 00	
Decayed fruit	50 00	
Total		5,122 00

RECEIPTS AND EXPENDITURES.

During the year the receipts from various sources, all of which have been duly accounted for to the Comptroller and deposited with the Chamberlain, were as follows:

For searches and transcripts of the records	$5,524 25
Sale of vaccine virus	2,096 13
Amount collected in settlement of judgments in civil actions for the enforcement of the several sections of the Sanitary Code	542 00

Received from the United States Government for the care of emigrants (in the hospitals of this Department) who were suffering from contagious diseases at the time of their removal	$5,136 00
Received from State of New York, for care of Corporal H. L. Beck, Seventy-fourth Regiment, N. G. S. N.Y.	79 00
In all the sum of	$13,377 38

The amount of money appropriated by the Board of Estimate and Apportionment, to be applied by the Health Department for the payment of salaries, disinfection, maintenance of Willard Parker, Reception and Riverside Hospitals, and for the general expenses of the Department, was $419,400. In addition to which the sum of $4,544.50, received from the United States Government (for the care of emigrants suffering from contagious diseases) from the State of New York, was placed to the credit of the Hospital Fund, and the sum of $5, for burial of deceased soldiers, was placed to the credit of the Fund for the Burial of Honorably Discharged Soldiers, etc.

Making in all	$424,620 00
There was expended the sum of	402,615 88
Leaving a balance of	$22,004 12

Herewith we append statement showing the amount of money appropriated and amounts expended during the year for specific purposes:

Fund for	Amount Appropriated.	Additional Appropriation.	Total Appropriation.	Amount Expended.	Balance.
Salaries	$223,400 00	.....	$223,400 00	$222,984 22	$415 78
Contingent Expenses	9,000 00	.....	9,000 00	8,889 94	110 06
Disinfection	13,000 00	†$800 00	13,800 00	13,737 29	62 71
Law Expenses	2,000 00	.....	2,000 00	1,999 92	08
Sanitary Police	55,000 00	.....	55,000 00	55,000 00	.....
Removal of Night-soil, etc.	36,000 00	.....	36,000 00	36,000 00	.....
Night Medical Service	1,200 00	.....	1,200 00	1,200 00	.....
Rents	3,800 00	.....	3,800 00	3,800 00	.....
Hospitals	47,000 00	†5 215 00	51,415 00	50,044 51	1,370 49
Burials—Honorably Discharged Soldiers, Sailors or Marines.	9,000 00	*5 00	9,005 00	8,960 00	45 00
Enumeration of Inhabitants of the City of New York	20,000 00	.....	20,000 00	.....	20,000 00
	$419,400 00	$5,220 00	$424,620 00	$402,615 88	$22,004 12

* Balance left over from 1890, available in 1891.

† Amount received for care and maintenance of sick immigrants at Riverside Hospital, North Brother Island, was $5,136.00, and $79 for care and maintenance of Corporal H. L. Beck, Seventy-fourth Regiment, N. G. S. N.Y., at the same place, making the sum of $5,215.00, less $800 transferred to Fund for Disinfection, making net increase of $5,220.00.

In conclusion, the Commissioners desire to acknowledge many official courtesies from other departments of the City Government, and to specially notice their prompt attention and efficient action upon reports from this Department of sanitary defects in the public property and municipal arrangements in their charge, and upon matters in connection with their public duties, directly or indirectly affecting the public health. Many reports of Sanitary Inspectors are forwarded weekly to the several city departments upon the condition of the streets, sewers, docks, public buildings, etc., suggesting the necessary changes and improvements, which receive due consideration and favorable action.

The Commissioners also desire to notice favorably the activity, fidelity and ability of the officers and employees of this Department in the performance of their important and often dangerous duties. To their faithful and devoted work is greatly due the successful administration of the Department and the important results accomplished.

Respectfully submitted,

CHARLES G. WILSON, President and Commissioner of Health.
JOSEPH D. BRYANT, M. D., Commissioner of Health.

HEALTH DEPARTMENT—SANITARY BUREAU,
NEW YORK, January 1, 1892.

General EMMONS CLARK, *Secretary:*

SIR—I have the honor to forward herewith the annual report of the work performed in the Sanitary Bureau for the year ending December 31, 1891.

During this year the Medical Sanitary Inspeciors were relieved of the duty of making inspections of the plumbing and drainage of houses where contagious diseases were reported and found, and this duty has since that time been very satisfactorily performed by the Lay Sanitary Inspectors and Sanitary Engineers. This change of duty has resulted in making the work of the Medical Sanitary Inspectors more directly professional, allowing them time to trace the source and course of the many communicable diseases reported. Thus has been accomplished that which former administrations have thought most desirable, and it is confidently expected that results will be obtained that will be of great value to the profession and public at large. The relief of the Medical Sanitary Inspectors from the work of inspection of plumbing and drainage has thrown increased labor upon the Lay Sanitary Inspectors and Engineers, oftentimes taking them into apartments where contagious disease exists. In no instance has there been the slightest inclination manifested on their part to shirk their duty, from fear of contracting the disease. The same fearlessness has characterized the work of the members of the Sanitary Company of Police. In the division having the oversight of the plumbing and drainage, light and ventilation of new buildings, 2,134 plans were presented during the year. The constant supervision of the houses embraced under these plans during their construction has kept the Inspectors fully occupied. During the year this division lost the services of Chief Inspector John C. Collins, who resigned after many years of faithful service in the Department.

FOOD INSPECTION.

As close and constant supervision is maintained over the food supply of the city as the limited number of Inspectors permits. During the year 96,377 inspections of milk were made, resulting in 193 arrests, and the collection of $4,416, which was turned into the City Treasury. Of fish, 498,480 pounds were seized; of meat and poultry, 1,115,277 pounds were seized, as unfit for consumption as food, 257,742 pounds of which was of the delicacy known as "bob veal."

The Meat Inspectors inspect the meat as it is slaughtered and hung in the various slaughter-houses, and condemn all that is unfit for human food. During the year a number of carcasses of tuberculous cows have been seized, and wherever the dairy from whence they came could be ascertained, an inspection of this dairy has been had by our Veterinarian, and in one instance an embargo was placed upon an entire herd of cows, which embargo was only raised after the slaughtering of the diseased cattle and a period of observation of the remainder. A daily inspection of slaughter-houses and many other prolific sources of nuisance has been made with the result of allowing the business to be conducted with the slightest possible offense. It has been the policy to seek to so control offensive trades that they may be conducted without offense in the city, rather than to drive them with their capital and employees to other localities, which would deprive the city of much of its material prosperity.

The chemical department is frequently called upon by citizens to make analyses of cases of suspected poisoning. Our chemical laboratory is not equipped for this purpose. The City should provide a public analyst, whose duty it should be to make analyses at the request of the District Attorney or Police Justices.

Analyses of Croton water have been made each week, and an exhaustive report of the Croton water-shed has been made, which report appears in this volume.

GAS-WORKS.

The illuminating-gas works of the city have been the subject of frequent and oftentimes just complaints. During the past summer one of these gas-works, after a prolonged hearing before the Board, was declared a public nuisance and the operation of its works ordered closed, but a sufficient time was allowed that company to make necessary changes in their plant. After which was done, the work ceased to be a nuisance, and the complaints relative thereto were withdrawn.

STEAM RAILROADS.

Many complaints have been made relative to the smoke and noise of operating the steam roads, both on the east and west sides of the city. Officers of the roads and citizen complainants have appeared before the Board, and much correspondence has taken place, with the final result of greatly lessening the cause of complaint as to the noise and smoke. The unnecessarily prolonged ringing of bells and sound of whistles have been stopped by orders of the railway officials, while the smoke nuisance has been much mitigated by the use of anthracite coal or coke on the yard engines, instead of bituminous coal, as was formerly exclusively used.

MANURE DUMPS.

The manure dumps have ceased to be a prolific source of complaint, as under no circumstances has any accumulation of manure been permitted within the built-up portion of the city. The manure carts, loaded and covered within the stable premises, are emptied directly upon the scows or floats and transported out of the city.

STABLES.

In no other direction has more progress been made than in the care of the 4,297 stables of this city. The use of sidewalk manure vaults has been entirely abandoned, and in only comparatively few instances are manure vaults permitted in rear yards, and this only when they are so situated as not to give offense, the principle being that no person has a right to maintain a nuisance which is objectionable in any degree to his neighbor. The keeping of manure within the stable in tightly covered receptacles, or the baling of the same, is recommended so that it may be removed without offense in properly covered carts. When it is remembered that there are 62,208 horses in the city, whose droppings, amounting to nearly five hundred tons daily, are to be cared for inoffensively, it may be readily seen that the question is one of magnitude. The substitution of cable traction for horses on surface car routes, is looked forward to as a valuable sanitary improvement, as it will not only banish the nuisance of car-horse stables, but will rid principal thoroughfares of an immense amount of filth and dust, which is oftentimes a cause of serious disease. There are a few cow stables within the city limits, chiefly in the annexed district. These are kept under frequent observation as to their cleanliness, and the animals are examined as to the existence of tuberculosis or other disease.

PRIVY-VAULTS.

The old time nuisance of the privy-vault has been nearly abolished. While in 1875, it was estimated that there were fifteen thousand vaults in the city, it is now thought that there are less than one thousand, and these are almost entirely in the annexed district, and where sewers are not yet constructed so as to permit of their abolishment. Those of us who were on duty then and now cannot fail to appreciate the improved conditions.

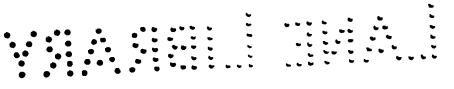
TENEMENT-HOUSES.

The inspection of the tenement-houses in this city has, as usual, largely occupied the attention of the Sanitary Bureau. There has been made the required semi-annual inspection by the Sanitary Police, resulting in the issuance of 16,108 orders directed chiefly in the line of cleanliness and purification of halls and apartments, yards and cellars, and the providing of proper and adequate receptacles for ashes and garbage.

The Sanitary Inspectors have inspected the tenement-houses of their district with especial reference to compliance with the State laws respecting the ventilation of halls and bedrooms, or ceilings of cellars, and the providing of a supply of water on each floor, as well as to the existence of stables upon the same lot with a tenement-house.

Special attention has been given to the condition of the plumbing and drainage of old tenement-houses, which has resulted in many orders for the providing of new iron house-drains in lieu of old defective earthenware drains, which were formerly allowed. Waste and soil pipes have been so universally provided with traps, and ventilated by extension through the roof in full calibre, that it would be a difficult task for one to find an untrapped and unventilated soil or waste pipe in the city. The application of the "peppermint test" is a most valuable adjunct to the Inspector, enabling him to detect defects in plumbing which would otherwise escape his notice.

Strenuous efforts have been made to prevent the overcrowding of tenement-houses. Night inspections have been constantly made, and where the number of occupants of apartments has been found to be too great to give each adult four hundred cubic feet and each child two hundred cubic



feet of air space, an order has been issued to reduce the number of occupants. This order has been enforced whenever it has been found that the family were taking boarders or lodgers, but discretion has been used when it was found that only the family proper occupied the apartments, and then if it was ascertained that the income of the family warranted their seeking more commodious quarters, they were urged to do so.

During the year orders were issued to reduce the number of occupants in 1,704 cases, covering 3,307 persons. Reinspections are, of course, made to see that the orders are obeyed.

The occupation of cellars as human habitations, which was formerly so common in this city, has been practically abolished. The attention of this Bureau was called to the fact that many of the hotels of the city lodged their employees in cellars beneath the hotel. All such places were visited and orders issued that such use of the cellar should be abandoned. In every instance the orders of the Board were obeyed.

HOUSES UNFIT FOR HUMAN HABITATION.

It sometimes happens that a house is in litigation, or that the owner cannot be found, or if found, is so averse to making improvements as to render it necessary for the Sanitary Superintendent to make a personal inspection and to certify to the Board that the premises are in a condition detrimental to health and dangerous to life by reason of defective plumbing and drainage or want of repair. Upon the filing of such certificate the Board may declare the house unfit for human habitation and order it vacated within ten days. Such order of vacation is served upon the owner and occupants, as well as pasted on the front door of the house. If within the ten days the necessary repairs are not made or in progress the order is enforced. It rarely happens that before the expiration of the ten days the repairs are not commenced.

LODGING-HOUSES.

There are in this city 116 lodging-houses, with accommodations for 14,172 lodgers. They vary in price as they do in tone, from seven cents to twenty-five cents per night. For the former price is provided a hammock or a platform on which the unfortunate may seek to forget his misfortune, and in lieu of a blanket a hot fire is maintained. For twenty-five cents a room, made private by dwarf partitions, is secured, with a comfortable bed and sufficient clothing. All of these lodging-houses are granted a permit for a certain number of lodgers, the number to be determined by the air space, four hundred cubic feet being the minimum requirement for each adult person. (A few years ago there were in this city many lodging-houses in cellars and underground rooms, but these abominations have ceased to exist under the vigorous action of this Board.) A constant supervision of these houses has been maintained, with a view of keeping them in as good sanitary condition as possible and to prevent the keeping of more lodgers than is permitted in each room. The penalty for violation of the rules is a forfeiture of the permit.

PUBLIC SCHOOLS.

While the Health Department is not directly charged with the care of public schools or of public school buildings, it has investigated every complaint that has been made with reference thereto, and whenever any sanitary defect has been discovered, a report of the same has been forwarded to the Commissioners of Education, calling their attention to the defects found and the

proper remedy. Upon the recommendation of the Medical Society of the County of New York, an inspection of the surroundings of every school building has been made, and an order has been issued in every case where a nuisance was discovered.

REMOVAL OF DEAD ANIMALS.

The removal of dead animals, offal and night-soil is still done under contract, at a cost to the City of thirty-six thousand dollars ($36,000) per annum. During the past year there have been very few complaints made that the work has not been properly done, and these few complaints have, upon investigation, been found excusable, having been caused by some error in the notification of the contractor. The dead animals, offal and night-soil are removed to Barren Island, where they are utilized, being chiefly converted into fertilizers by processes which are said by residents on the Long Island shore to be not always inoffensive.

RELATION TO OTHER DEPARTMENTS OF THE CITY GOVERNMENT.

The Sanitary Bureau has been frequently called upon to investigate nuisances which it has been powerless to abate except with the co-operation of some co-ordinate branch of the City Government. It has advised the building and repair of public sewers and culverts; the drainage of low lands; the repair of public buildings; the repair of defective street pavements; the improvement of public parks; the dredging of slips; the repair of docks; the cleaning of streets, and removal of ashes and garbage. In turn, other departments have, from time to time, requested this Bureau to detail from its experts those who should inspect and advise upon contemplated building operations. There has existed a mutual comity between the departments, that has been productive of much good.

During the past summer the Sanitary Superintendent was selected to represent the Health Department at the International Congress of Hygiene and Dermography, which was held in London, August 10 to 17. An exhibit of plans for new buildings, photographs of our hospitals, disinfecting station, ambulances, etc., together with sets of blanks and reports, was made, all of which attracted much attention and elicited the warm commendation of the Congress.

I have the honor to forward herewith detailed reports of the work performed in each division into which the Sanitary Bureau is divided.

All of which is respectfully submitted,

W. A. EWING, M. D., Sanitary Superintendent.

WORK PERFORMED BY THE SANITARY BUREAU FOR THE YEAR.

The following is a summary of the operations of the Sanitary Bureau, which is charged with the duty of inspecting and reporting, in proper form, all nuisances or causes of danger to the public health, with the execution of the orders of the Board, and with the care of contagious diseases.

The number of inspections and reinspections made by the Sanitary Inspectors, and the Sanitary Police, was 676,088, classified as follows:

By the Sanitary Inspectors	59,515
By the Sanitary Police Inspectors	298,090
By the Division of Contagious Diseases	26,456
By the Plumbing and Ventilation Inspectors	55,845
By the Milk Inspectors	96,377
By the Fruit and Food Inspectors	42,018
By the Meat and Fish Inspectors	67,929
By the Offensive Trades Inspectors	29,837
By the Assistant Chemists	21
Total	676,088

The number of complaints returned was 30,673

Classified as follows:

By the Sanitary Inspectors	13,222	
By the Sanitary Police Inspectors	16,108	
By the Division of Contagious Diseases	1,065	
By the Division of Plumbing and Ventilation	5	
By the Milk Inspectors	13	
By the Fruit and Food Inspectors	2	
By the Meat and Fish Inspectors	4	
By the Offensive Trades Inspectors	254	
Total		30,673

The number of complaints received from citizens was 17,834, all of which were referred to the Sanitary Inspectors and the Sanitary Police, for investigation and report.

The Sanitary Superintendent during the same period, under instruction and authority of the Board, granted 2,863 permits to discharge cargoes, under proper vouchers from the Health Officer of the Port; 957 permits to scavengers to empty privies; 105 permits to land rags (in bulk) under bonds; and 205 miscellaneous permits under the Sanitary Code.

The following is a summary of the work performed by the Sanitary Inspectors:

Number of inspections and reinspections made	59,515
Number of complaints made	13,222

The following premises and locations have been inspected and reported upon by the Sanitary Inspectors, a summary of which is as follows:

Summary of Inspections.

Tenement-houses	16,448
Lodging-houses	146
Private dwellings	2,728

Other dwellings .....
Public buildings .....
Other buildings.....
Offensive trades buildings.....
Manufactories and workshops.....
Stores and warehouses.....
Stables.....
Sunken and vacant lots.....
Public highways ... .
Receiving-basins and public sewers.....
Dumps and dumping grounds.....
Docks and piers .....
Slaughter-houses.....
Railroad cars.....
Gas-mains.....
Public vehicles.....
Water-courses.....
Ponds.....

Total.....
Total reinspections.....

Total inspections and reinspections made.....

Number of privy vaults ordered abolished.....
Number of cellars ordered to be made water-tight.....

The following is a summary of reports made by Sanitary Inspectors, with the re inspections:

Nature of Complaint.	Cause for Complaint.	No Cause for Complaint.	T
Dangerous buildings.....	29	7	
Offensive trades buildings.....	24	5	
Public highways.....	25	2	
Sunken and vacant lots.....	317	43	
Public sewers and receiving-basins.....	148	19	
Croton-water mains.....	5	1	
Steam-heating mains.....	5	....	
Gas-mains.....	14	8	
Stables.....	717	138	
Plumbing.....	7,407	2,513	

Nature of Complaint.	Cause for Complaint.	No Cause for Complaint.	Total.
Drainage	2,705	1,422	4,127
Ventilation	3,504	185	3,689
Light	71	55	126
Noise	1	9	10
Dangerous structures	408	22	430
Repairs needed	3,088	194	3,282
Cellars and basements	2,717	373	3,090
Privies and water-closets	6,404	516	6,920
Cesspools	404	18	422
Manure vaults	187	9	196
Croton water supply	586	180	766
Chimneys, dangerous and smoky	293	60	358
Streets, gutters and sidewalks	48	20	68
Filth	3,991	1,624	5,615
Cows and other animals	27	6	33
Fowls	49	6	55
No housekeepers	6	2	8
Ash and garbage receptacles	38	1	39
Wells	35	1	36
Dumping grounds	3	---	3
Overcrowding	....	15	15
Ponds	....	1	1
Piers and docks	2	....	2
Aqueducts	1	....	1
Water-courses	11	2	13
Swamp lands	1	1	2
Marsh lands	....	1	1
Slaughter-houses	....	1	1
Totals	33,280	7,460	40,740

The whole number of citizens' complaints received from the Sanitary Bureau for investigation and report by the Sanitary Inspectors was 8,889

The whole number of complaints received from the Sanitary Officers for investigation and report by the Sanitary Inspectors was 1,529

The whole number of reports upon complaints, original and referred, which have been forwarded to the Sanitary Bureau for Board's orders was 12,560

The whole number of reports upon complaints, original and referred, which have been forwarded to the Sanitary Superintendent for action was 662

The whole number of original complaints made by the Inspectors and forwarded to the Sanitary Bureau for the Board's orders was	4,794
The whole number of citizens' complaints returned with a negative report was	2,560

The whole number of orders reinspected and forwarded to the Sanitary Bureau for the Board's action was 15,953, as follows: Attorney's orders, 8,083; orders complied with, 5,787; orders not complied with, 2,083.

The following is a summary of the work performed by the Sanitary Police:

Number of inspections and reinspections made	298,090
Number of complaints made	16,108
Number of complaints made and forwarded to the Sanitary Superintendent	10,956
Number of complaints made and forwarded to the Sanitary Inspectors	1,467
Number of complaints made on complaints of citizens and forwarded to the Sanitary Superintendent	3,342
Number of complaints made on overcrowding in tenements	1,810

The number of orders received, inspected and reported upon was 52,771, of which number, with 900 orders held for reinspection at date of last report, there have been returned to the Sanitary Superintendent:

Orders complied with	22,203
Orders not complied with	30,275
Orders held for reinspection, work progressing	1,193
Orders received from the Division of Contagious Diseases to stop work, close stores, and keep premises under observation	202
Relieved from observation	200
Under observation	5
Number of night inspections of tenement apartments to report overcrowding	54,643
Number of complaints of overcrowding made and forwarded for orders	1,745
Number of orders issued by the Board to reduce the occupants in overcrowded apartments	1,704
Number of orders complied with	1,417
Number of orders not complied with	225
Number of persons removed from overcrowded tenements	3,350
Number of notices of violations served	1,420
Number of letters delivered	9,835
Number of water-closets ordered in lieu of privy vaults	88
Number of ash receptacles removed from sidewalks	16,511
Number of scavenger permits collected and forwarded to the Sanitary Superintendent	819
Number of manure dump inspections	1,065
Number of lodging-house inspections	645
Number of tenement-houses inspected (general inspections)	104,372
Number of tenement-house inspections (under the law), house-to-house inspection	70,655

Number of slaughter-houses inspected	5,295
Number of stable inspections	12,385
Number of miscellaneous inspections and reinspections of other than tenement-houses	30,826
Number of notices served in relation to the burial of persons who died from contagious diseases	2,271
Number of postal cards transmitted to the Department of Street Cleaning	1,203

Nature of Complaints and Violations Reported by the Sanitary Police.

Nature of Complaints and Violations.	Complaints Made.	Nuisances Abated by Personal Effort.	Total.
Air shafts filthy, not covered or connected with house sewer	429	422	851
Areas filthy and dangerous	677	536	1,213
Ash-boxes in violation of Sanitary Code	497	16,704	17,201
Balusters and stairs dangerous	280	....	280
Cellars filthy	2,691	2,336	5,027
Cellars occupied as a place of dwelling or lodging	213	....	213
Cellar doors dangerous	53	....	53
Cellars not water-tight	122	....	122
Cellar ceilings not plastered	5,857	....	5,857
Cesspools	77	....	77
Chimneys dangerous or obstructed	209	....	209
Clothes poles dangerous	9	....	9
Cows, no permits	24	....	24
Docks filthy	1	44	45
Dogs, in violation of Sanitary Code	163	....	163
Drains obstructed or defective	242	....	242
Drains not provided with a running trap or fresh air inlet	13	....	13
Eaves gutters defective or dangerous	79	....	79
Fences dangerous	93	....	93
Fire-escapes filthy or obstructed	48	93	141
Flooring broken, dangerous or filthy	828	166	994
Fowls, no permit	252	2	254
Fresh air inlets obstructed	3	962	965
Goats, no permit	54	....	54
Hogs, no permit	2	....	2
Halls not properly ventilated	389	....	389
Hydrants out of repair	105	....	105
Ice-boxes defective	132	....	132
Ice-boxes not connected with a properly trapped Croton-supplied sink	754	....	754

Nature of Complaints and Violations Reported by the Sanitary Police—(Continued

Nature of Complaints and Violations.	Complaints Made.	Nuisances Abated by Personal Effort.	T
Inside rooms not properly ventilated	979	....	
Lodging-houses, no permit	14	....	
Lodging-houses in tenements	1	....	
Leaders defective, obstructed or dangerous	319	....	
Manure-vaults in violation of Sanitary Code or no permit	391	....	
No appliances to receive and distribute water on every floor of tenement	712	....	
Pigeons kept	194	....	
Pumps out of repair	58	....	
Privy accommodations not sufficient	75	....	
Privy-vaults full, offensive, or out of repair	126	....	
Privy-houses filthy or out of repair	862	772	
Premises not connected with street sewer	91	....	
Rags stored in tenement-houses	223	....	
Rabbits kept	50	....	
Receiving-basins full or offensive	358	....	
Roofs leaking or filthy	835	105	
Schools kept in tenement-houses	164	....	
School sinks out of order	319	554	
Stable yards filthy, not paved, graded or sewer connected	312	166	
Stables in tenement-houses	1,217	7	
Skylights broken	104	....	
Stoops dangerous	66	2	
Soil-pipes obstructed, defective or not ventilated	381	4	
Sinks filthy, defective or not trapped	333	23	
Sidewalks filthy, dangerous or not flagged	190	31	
Street pavements dangerous	211	3	
Streets or gutters filthy or obstructed	578	176	
Street culverts obstructed	4	....	
Smoke-houses in tenement-houses, no permit	2	....	
Supply-pipes obstructed or defective	549	....	
Trees dangerous or noxious	2	....	
Tenement-houses overcrowded	69	....	
Urinals not trapped, flushed or sewer connected	121	38	
Vacant lots filthy, dangerous, not fenced or sewer connected	426	5	
Vault covers or gratings dangerous	28	....	
Water-closets out of repair or filthy	849	4	

Nature of Complaints and Violations Reported by the Sanitary Police—(Continued).

Nature of Complaints and Violations.	Complaints Made.	Nuisances Abated by Personal Effort.	Total.
Water-closets not trapped or ventilated	12	....	12
Water-tanks filthy	134	43	177
Walls and ceilings filthy or out of repair	5,307	....	5,307
Waste-pipes obstructed, defective or not ventilated	304	....	304
Yards filthy, not properly graded or sewer connected	1,393	2,299	3,692
Yard pavements out of repair	238	....	238
Total	32,797	25,497	58,294

Health Department—Division of Contagious Diseases,
New York, December 31, 1891.

To the Board of Health of the Health Department:

Gentlemen—I have the honor to present the following report of the organization and work of this division for the year 1891.

For the first quarter, the organization of the division remained as during the previous year, comprising:

Inspectors of Contagious Diseases (Diagnosticians).

Inspector of Institutions and Schools.

A Corps of Medical Sanitary Inspectors.

A Corps of Vaccinators.

A Disinfecting and Ambulance Corps, and

A Veterinary Surgeon.

Drs. Dillingham and Benedict were charged with the duty of diagnosis of all cases reported to the division as contagious.

Dr. M. Morris was assigned to the duty of making inspections of schools and institutions for children, reporting unsanitary conditions, supervising and enforcing isolation of children sick with contagious diseases, and compliance with chapter 633, Laws of 1886, in all chartered institutions.

During the summer he is detailed in charge of the Summer Corps of Physicians, and at times to perform other important sanitary duty outside of this division.

THE MEDICAL SANITARY INSPECTORS.

Eleven Medical Sanitary Inspectors were assigned to the same number of districts into which the city was divided. Their duties were to visit the houses in their respective districts where cases

of contagious diseases had existed, carefully inspect the plumbing, ventilation and other surroundings having a recognized bearing upon the cases, or the general health of the occupants. Unsanitary conditions, when discovered, were reported upon blank forms prepared for the purpose, and forwarded through the Chief Inspector, for official action by the Board of Health. Isolation of contagious cases was supervised by them whenever such remained upon their own premises. Whenever a case of contagious disease, so diagnosed by the diagnosticians, could not be properly isolated upon its own premises, it was ordered to be removed to one of the Department hospitals, after which the District Medical Inspector was notified and made his official inspection of the premises.

The assignments and districts covering the city were as follows:

Dr. Blauvelt, from Battery to West Fourteenth street, all west of Broadway.

Dr. Aspel, from West Fourteenth street to West Fiftieth street, all west of Fifth avenue.

Dr. McManus, from West Fiftieth street to West One Hundred and Twenty-fifth street, all west of Fifth avenue.

Dr. Parsons, from West One Hundred and Twenty-fifth street to Harlem river, all west of Fifth avenue, and from Harlem river north to Kingsbridge, all west of Jerome avenue.

Dr. Doty, from Market street to Bowery, south to East river, also north from East Houston to East Fourteenth street, between Bowery and Third avenue, Broadway to East river.

Dr. McCallum, from east of Market street and Bowery to East Houston street, all east to East river.

Dr. Spencer, from East Houston to East Twenty-third street, all east of Fifth avenue.

Dr. Roberts, from East Twenty-third street to East Fifty-ninth street, all east of Fifth avenue.

Dr. Ambrose, from East Fifty-ninth street to East One Hundred and Tenth street, all east of Fifth avenue (resigned).

Dr. Mersereau, from East One Hundred and Tenth street to Harlem river, all east of Fifth avenue.

Dr. O'Byrne, all of Twenty-third and Twenty-fourth Wards, east of Jerome avenue.

DETAIL OF DUTIES.

Diagnosticians.

Immediately upon the receipt of a report at this office of any suspicious case of contagious disease, one of the diagnosticians was dispatched to examine, make his diagnosis, and notify the office at once, if in his judgment it was necessary, or the family and physician desired its removal to one of the Department hospitals.

Upon the receipt of this report, the Medical Sanitary Inspector of the district was notified of the case and location, upon which he proceeded to perform his special duties with reference thereto, as before described.

In the detail of their work, the Inspectors were also required to investigate, as far as possible, the sources of contagious diseases referred to them, and further, to investigate and report upon other diseases—not specifically classed as contagious—but such surrounding zymotic conditions, with a view to their modification or abatement, as might be found to have been the exciting causes. These were cerebro-spinal meningitis, malarial fever, croup, dysentery, tubercular

meningitis, phthisis, tabes mesenterica, parotiditis, erysipelas, etc. Incidentally, they were required to forward notifications to the principals of all schools, of children who had been exposed to contagious diseases, upon postal cards prepared for the purpose. By a rule of the Board of Education, no such child could be readmitted to the school without presenting to the principal a certificate from this division that it was safe to readmit the child. This certificate was never issued until a specified time had elapsed after the recovery or death, and the premises had been fumigated and disinfected by a member of our Disinfecting Corps. A list of all children and their residences was daily also furnished to the Board of Education, where any case of contagious disease had existed, that it might also notify the various principals of the names and location of such cases. The various fresh air charities sending children to the country in the summer were also notified from this office of children with their addresses who had been exposed to contagious diseases, that the spread of infectious diseases might thus be prevented.

All of the corps of Medical Sanitary Inspectors connected with this division were required to make semi-weekly reports of their work, and to report personally at the office twice weekly.

Vaccination Service.

The permanent corps of Vaccinators, authorized by an act of the Legislature in 1874, of eight physicians, was continued with additions from time to time of temporary vaccinators. Seven were thus added, and the city divided into fifteen districts, one being assigned to each. This work varied somewhat during the year, in accordance with the seasons. From January to end of June the work continued incessantly. From July to the end of the first week in September it was suspended, successful vaccination being found incompatible during the heated term. It was again resumed from the second week in September to the end of the year. During the interregnum the members of this corps were transferred to the duties of the Summer Corps work.

In the detail of vaccination duty, several of the regular corps were especially assigned to school and institution vaccination, while the remainder did house-to-house vaccination in their respective districts. This work not only involved the performance of the operation of vaccination, but also required a revisit and examination of the arms, at the expiration of a week, to see whether the results were successful. If not, those proving abortive at the first trial were revaccinated, especially in all primary instances. A careful record of all this work, by date, name and residence, was required of each member of the corps, to be reported upon proper blanks to this office semi-weekly.

The method of performing the operation of vaccination is of special interest, and has been adopted in this division as the best that has yet been devised for this purpose. By this system, the great objection to vaccination heretofore presented has been entirely overcome. First, only pure carefully selected bovine vaccine virus is ever used. Second, the use only of new needles is allowed, a new (No. 5) needle being used for each operation, with a freshly charged quill for each. In this way all sources of contamination are absolutely avoided.

Each person being vaccinated with a new needle and a fresh quill point, both of which are at once thereafter destroyed, obviates any possibility of infection from using soiled instruments or blood contamination.

Each Vaccinator is provided with packages of new needles, and sufficient freshly charged quills from the office for daily use.

Summer Corps.

The work of the Summer Corps of Physicians was continued as in former years, during the months of July, August, and first week of September, under the supervision and charge of Inspector Dr. Moreau Morris, detailed for that duty.

Ambulance and Disinfecting Corps.

For the ambulance and disinfecting service the corps consisted of six men. Two of these were detailed successively for daily ambulance duty, while the others were detailed for disinfecting duties, each being assigned to specified districts.

The detailof these duties was as follows: Immediately upon receiving a report from one of the diagnosticians of any contagious case to be removed to hospital, a man was dispatched with an ambulance or coupé to take the case to the hospital, and also to disinfect the room immediately upon the removal of the patient therefrom. The disinfector in whose district the case occurred was thereafter required to proceed to the premises to fumigate and redisinfect the room, including the bedding, clothing or other articles that had probably become infected during the progress of the disease. In other cases where the patients were isolated, the disinfector called and left disinfectants with a printed code of instructions for the use of the family or nurse in charge of the case, with instructions to report when the case had finally recovered, that further fumigation and disinfection might be performed.

By this method prompt removal of the case to hospital was secured, and disinfection of premises and infected articles that had been exposed was performed.

The organization, with the exception of the Vaccination and Summer Corps services, was practically as above during the first quarter of the year.

REORGANIZATION.

On the first of April important changes were instituted in this division, especially in the details of the work of Medical Sanitary inspection, and the methods of ambulance and disinfection duties. The methods and duties of the other subdivisions remained unchanged.

The duty of inspecting plumbing and other unsanitary surroundings having recognized bearings upon the contagious cases reported, was now relegated to the Division of Plumbing and Ventilation. Several of the Medical Sanitary Inspectors were now transferred to that division.

This reorganization somewhat materially changed the methods of the work of the subdivisions in this service.

This division was now reapportioned and a special corps assigned to each subdivision. It was comprised as follows:

Medical Sanitary Inspectors' Corps.

An Inspector of Schools and Institutions with Children.
Vaccinating Corps.
Ambulance Corps.
Disinfecting Corps.
Summer Corps, and a
Veterinarian.

This reorganization provided the division with nine Medical Sanitary Inspectors. The two former diagnosticians were now merged and classed with the former. The city was redistricted into six sanitary districts, and one Inspector assigned to each.

Their duties were now, the work of diagnosis, and disposition of all contagious cases reported, determining the nature of the disease, their removal to hospital or isolation in their own premises, as the necessities of each case required. For this purpose there was a regular apportionment of days, each of five Inspectors being on duty for twenty-four hours in rotation below Ninety-second street. The other Inspector, Dr. O'Byrne, was charged with the duty of investigating all cases reported above Ninety-second street, including all district work of the district to which he was assigned. The regular district work was thus carried on daily, one Inspector being specially detailed to attend to the district work during the absence of the Inspector on diagnostic duty, from his regular district.

By this arrangement, reported cases of contagious disease were promptly attended to, while the regular district work went on uninterruptedly.

The district duty being now relieved of the inspection of plumbing and other correlative unsanitary conditions pertaining to the premises where contagious cases were located, was now confined to supervision of isolated cases, enforcing disinfection and investigating the sources or causes of the contagious diseases, and also the investigation of other zymotic diseases not specially classed among the active infective or contagious class. These included cerebro-spinal meningitis, malarial fever, croup, dysentery, tubercular meningitis, phthisis, tabes mesenterica and erysipelas, etc.

Dr. Moreau Morris, who had been assigned to the duty of general supervision of all institutions having the care of children and schools, was continued in that duty.

There was also one Inspector, Dr. Pardee, charged with the duty of cultivating bovine vaccine virus, and providing all the needed vaccine virus for the use of the subdivision of vaccination and for public sale.

A Veterinary Surgeon was also continued in the service of the division, whose duty it was to examine all cattle to be used for cultivating bovine vaccine, assuring their healthy condition, also to examine all cattle or other animals suspected of being diseased in the city.

The new apportionment of work for the Medical Sanitary Inspectors, the assignments and boundaries of districts were as follows :

Dr. Blauvelt's district, from Battery to West Fourteenth street, all west of Broadway.

Dr. Benedict's district, from West Fourteenth street to West Eighty-second street, all west of Fifth avenue.

Dr. Parsons' district, from West Eighty-second street, all west of Fifth avenue to Harlem river, thence north to Kingsbridge, all west of Jerome avenue.

Dr. Doty's district, from Canal to East Houston street, all east of Broadway, also East Houston to East Fourteenth street, between Bowery and Broadway.

Dr. Roberts' district, from East Houston to East Forty-second street, all east of Bowery to Fourteenth street, and from thence north, all east of Fifth avenue to East river.

Dr. Dillingham's district, from East Forty-second street to East Ninety-second street, all east of Fifth avenue to East river.

Dr. O'Byrne's district, from East Ninety-second street to Harlem river, all east of Fifth avenue, also all of the Twenty-third and Twenty-fourth Wards, all lying east of Jerome avenue.

The results of the work of the medical sanitary inspection for the year 1891 were as follows:

Contagious Diseases Reported and Referred to Inspectors.

Typhus fever	9	
Typhoid fever	1,342	
Scarlet fever	7,442	
Measles	11,980	
Diphtheria	4,874	
Small-pox	*21	
		25,668

Other Diseases Reported and Referred to Inspectors.

Cerebro-spinal meningitis	119	
Varicella	296	
Malarial fever	113	
Croup	490	
Dysentery	49	
Tubercular meningitis	430	
Phthisis	93	
Tabes mesenterica	12	
Parotitis	11	
Erysipelas	25	
Rötheln	2	
Leprosy	3	
		6,334
Total		32,002

Total number of inspections made	26,585
Total number of general and special reports made	8,683

Detail of Work Performed by the Medical Sanitary Inspectors.

Number of cases visited	26,182
Number of houses inspected:	
Number of inspections of tenements	20,914
Number of inspections of private houses	2,313
Number of inspections of schools and institutions	1,561
Number of inspections of hotels	70
Number of inspections of miscellaneous	1,727
	26,585
Number of visits to physicians and undertakers to secure observance of sections of the Code relating to contagious diseases	364
Number of special diagnoses made	2,352
Number of school notices sent	14,507
Number of visits to Central office	1,592

* 12 were from Quarantine.

VACCINATION.

One Inspector, Dr. Pardee, was specially charged with the care of the Vaccine Laboratory, provided by the Department for the cultivation and propagation of pure bovine vaccine.

For this purpose carefully selected young cattle, after being thoroughly examined by the Veterinarian as to their soundness and perfect freedom from any disease, were vaccinated by the Inspector, and after the expiration of the proper time of vesicle development, quills, ivory points, and glass tubes, specially prepared, were charged with the bovine virus, and provided for the use of the corps of Vaccinators, also for free distribution for gratuitous vaccination, by physicians not connected with the Department, and for public sale.

The subdivision of vaccination under the reorganization remained unchanged, there being regularly attached to it fifteen permanent members. This membership was increased from time to time, temporarily, as emergencies required.

The work proceeded regularly from January 1 to July 1, was then suspended until September 9, when it was again resumed.

The permanent members of this corps were transferred to the work of the Summer Corps during its operations from July 1 to September 9.

The summary of the work of this subdivision for the year was as follows:

Number of primary vaccinations performed	25,505
Number of re-vaccinations performed	84,132
Total	109,637
Visits to sick children	920
Reports forwarded to Chief Inspector	1,053

It will be observed that in comparison with the previous year the number of vaccinations was very largely increased, 92,047 being the total for the year 1890, while 109,637 was the total for the year 1891, an increase of 17,590 in primary and re-vaccinations, and an increase of 35,095 over the total vaccinations of 1889.

The number of animals vaccinated was	148
Quill slips prepared	192,200
Ivory points prepared	17,650
Capillary glass tubes filled	595

THE AMBULANCE CORPS.

The apportionment of the work of the Ambulance Corps was also materially modified, as follows:

Four men, Cooney, Dorian, Reynolds and Ward, were specially detailed for ambulance duty exclusively.

Two men were required to be on duty for twenty-four hours consecutively. This arrangement practically kept two on duty and two off duty for each twenty-four hours.

Their duties, in detail, were to remove patients so ordered by the Inspectors to hospitals, also to disinfect the premises immediately upon the removal of the patient. Immediately upon the receipt of the report from the Medical Sanitary Inspector on diagnosis, ordering the case to hospital, an ambulance man with vehicle (coupé or ambulance) proceeded and removed the case to hospital, disinfecting the premises immediately after the patient was removed therefrom. Subsequently the premises were redisinfected by a member of the regular Disinfecting Corps. Immediately upon discharging the patient into hospital, the ambulance or coupé was thoroughly disinfected before leaving the hospital, at the Disinfecting Depot, after which he returned to the office for further orders.

The following is the summary of the work performed by the Ambulance Corps:

Number of patients removed to hospital on account of contagious diseases	1,065
Number of dead bodies removed to Morgue	19

DISINFECTING CORPS.

The Disinfecting Corps consisted of ten men. One was especially detailed to the work of removing infected bodies, clothing or goods, from infected premises to the Disinfecting Depot and Crematory at Willard Parker Hospital. His duty was to perform the work of removal and to disinfect or cremate all infected articles brought to the depot as the occasion required.

An apparatus for these purposes had been constructed and arranged thereat, by the Department. The system or method prescribed for these purposes may in general terms be thus described: A large room was provided with a receiver, from the centre of which a solid partition divides the room into two sections, one for receiving all infected material, and the other for receiving all material to be preserved after its thorough disinfection. Into one end of the receiver the infected material is placed, and the method of disinfection proceeds as follows: Driving into it by means of a fan or blower, hot air, moist or dry, the infected articles are thoroughly permeated by a temperature of about 230° of Fahrenheit, destructive to all germ poisons. After the lapse of a suitable time, the opposite end of the receiver is opened and the articles, now thoroughly disinfected, are removed therefrom into the non-infected room, where they are assorted and subsequently returned to their owners. Such articles as are not to be disinfected by this process, are put into the crematory and destroyed.

This system secured the saving of much valuable material to their owners, in many instances unable to bear the loss, as well as the entire destruction of the infectious or contagious elements that otherwise would undoubtedly have been the means of spreading contagious disease.

The number of pieces of infected articles thus disinfected and returned to owners	37,979
The number destroyed by cremation	8,420
The number remaining on storage to be returned	50
Total	46,449

For the further purposes of disinfection and fumigation the city was divided into eight districts, one man being assigned to each.

His detail of duty was to redisinfect all premises in his district, from which any case of contagious disease had been removed to hospital, also to disinfect and fumigate after the recovery or death of any such patient, the premises, bedding, clothing, or articles, probably infected, where patients had been isolated.

One man, Mr. White, of this corps, was detailed at the office to supervise the work of these disinfectors, keep the records of the same, and for other clerical work as needed.

In accordance with rules adopted by the Board of Education, no children are readmitted to the public schools after they have been excluded therefrom on account of contagious disease, until they present a certificate from this Division that it is safe to readmit them. This certificate is not issued until a specified time has elapsed after the recovery or death of the infected cases, and all the measures of fumigation and disinfection have been performed by the members of the Disinfecting Corps.

This method practically assures the general safety of school children from direct infection through contact with other school children from infected premises.

The summary of the work of the Disinfecting Corps is as follows:

Work performed by Disinfectors.

Number of houses visited	30,147
Number of infected rooms fumigated	28,347
Number of infected rooms disinfected	96,208
Number of pieces of infected goods removed by Department for disinfection	35,519
Number of pieces of infected goods removed by owners for disinfection	10,930
Total	46,449
Number of pieces of infected goods disinfected at depot and returned to owners	37,979
Number of pieces destroyed	8,420
Number of pieces on hand	50
Total	46,449

Other work of disinfection at fires, where offensive conditions required such measures, in the disinfection of dead bodies of persons or animals, was performed upon such emergencies as the occasions required.

SUMMER CORPS.

This subdivision is put in operation only during the midsummer, in the months of July, August, and first week of September, and was under the charge of Dr. Moreau Morris as its chief.

For this work the tenement-house portions of the city were divided into fifty districts. Fifty medical men, a part of whom were transferred from the permanent corps of Vaccinators, and the balance temporarily appointed for this service, were assigned, one to each district.

The duties prescribed for the members of this corps, were to visit every domicile in each tenement-house in his district, selecting such, as far as practicable, housing the poorest classes. Sick children were sought out, and if without medical attendance, prescribed for, and medical and sanitary advice given.

Their further duties were also to observe all unsanitary domiciliary conditions, immediately surrounding and having a bearing upon the general health, to cause the removal or abatement of such minor, but equally important, nuisances from the premises, by personal appeals and efforts, or if not successful in these persuasive efforts, and the nuisances being of an aggravated character, to report the facts to the chief officer for further official action.

The results of this work are exhibited as follows:

Number of visits to houses	39,164
Number of visits to families therein	335,293
Number of revisits to patients under treatment	3,553
Total of visits and revisits	338,846

Number of sick treated for the following diseases:

Diarrhœal	11,099
Dysenteric	293
Respiratory	2,474
Contagious	454
Miscellaneous	5,457
Making a total of cases treated of	19,777

Circulars for care of infants distributed	36,551
St. John's Guild tickets for floating hospital distributed	14,861
Nuisances abated by personal efforts	5,340
Complaints of other nuisances forwarded	360
Patients of other physicians found under treatment	6,949
Days of service rendered	2,358

VETERINARIAN.

The work performed by the Veterinarian is shown by the following statement:

Number of cases of contagious disease in animals visited	566
Number of inspections made	1,564
Number of head of cattle examined	34,721
Number of glandered horses destroyed	68
Number of post-mortems on cattle	146

Other miscellaneous work performed at the office :

Certificates of vaccination issued	21,979
Prescriptions written	1,089
Prescriptions filled	1,089
Reports forwarded	1,818

Respectfully submitted,

CYRUS EDSON, M. D., Chief Inspector.

DIVISION OF PLUMBING AND VENTILATION,
December 31, 1891.

To the Board of Health of the Health Department of the City of New York :

GENTLEMEN—I have the honor to submit the following report of the work performed by the Inspectors of the Division of Plumbing and Ventilation, for the year ending December 31, 1891 :

Number of inspections and reinspections made	55,845
Number of complaints made	5

Plumbing and Drainage of New Buildings.

Plans and specifications filed and reported upon	1,512
Buildings included in such plans and specifications	2,780
Tabled and disapproved plans re-examined and reported on	590
Total number of plans reported upon	2,112
Amendments to such plans examined and reported upon	1,144
Buildings included in such plans and amendments	6,947
Buildings reported begun	2,781
Buildings reported finished	2,674
Buildings reported in course of construction at date	2,478
Buildings reported projected at date in addition	624
Buildings reported containing plumbing at date	1,821
Number of violations of plumbing law issued	1,018
Buildings included in such notices	2,204
Violations reported removed	946
Buildings included in removed violations	1,941
Violation cases referred to Attorney	395
Inspections made under the plumbing law	43,711

Light and Ventilation of New Tenements.

Plans and specifications filed and reported upon	622
Tenements included in such plans and specifications	1,101
Tabled and disapproved plans re-examined and reported upon	219
Total number of plans reported upon	841
Amendments to such plans examined and reported upon	254
Tenements included in such plans and amendments	1,922
Tenements reported begun	1,211
Tenements reported finished	1,252
Tenements reported in course of construction at date	1,029
Tenements reported projected at date, in addition	153
Notices of violation of tenement-house law issued	417
Tenements included in such notices	732
Violations reported removed	347
Tenements included in removed violations	597
Violation cases referred to the Attorney	389
Inspections under the tenement-house law	12,109

Plumbing and Ventilation of Old Houses.

Citizens' complaints returned to the Sanitary Superintendent	5
Inspections and reinspections on citizens' complaints	18
Inspections in lodging-houses (permit cases)	7
Total inspections and reinspections of old houses	25

Recapitulation.

Total number of plans filed	2,134
Total number of original plans and amendments disapproved and tabled, and plans re-examined and reported on	4,341
Total number of violations of law removed, covering 2,538 houses	1,293
Total number of violations of tenement-house and plumbing law, covering 2,941 houses	1,440
Total number of all inspections and reinspections	55,845

Detailed Statement of Plans for Plumbing and Drainage and Light and Ventilation Filed and Reported on each Month.

	Light and Ventilation.			Plumbing and Drainage.			Totals.
	Plans.	Second Plans.	Amendments.	Plans.	Second Plans.	Amendments.	
January.....	52	4	20	92	1	79	248
February.....	56	4	16	98	2	59	229
March.....	60	2	35	132	3	117	349
April.....	96	2	9	156	2	54	319
May.....	75	2	22	155	5	100	359
June.....	50	6	23	161	4	102	351
July.....	39	12	27	173	3	96	350
August.....	27	4	10	119	3	75	238
September....	30	1	11	91	3	100	237
October.....	46	..	12	112	1	98	269
November...	41	6	26	108	5	134	320
December....	50	2	37	121	..	130	340
Totals....	622	45	254	1,512	32	1,144	3,109

Detailed Statement of the Number of Buildings for which Plans were Filed and Reported

Description.	Wards.									
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
Tenements	..	..	..	2	1	6	42	8	34	11
Dwellings	..	..	..	1	1	..	1	..	..	2
Factories	..	..	..	1	1	..	4	3	1	1
Stables	..	..	..	..	2	..	3	..	..	..
Churches	..	..	..	..	..	1	1	..	..	..
Schools	..	..	..	..	..	..	..	..	..	..
Hotels	..	..	..	..	..	..	..	..	..	..
Warehouses	2	2	7	..	17	1	..	8	7	1
Club-houses	..	..	..	..	..	..	..	..	..	..
Institutions	..	..	..	..	..	..	..	..	..	..
Lodging-houses	..	..	..	..	..	..	..	..	..	1
Hospitals	..	..	..	..	..	..	..	..	..	..
Office buildings	5	2	2	..	..	..	..	..	..	..
Banks	1	..	..	..	..	..	..	..	..	..
Theatres	..	..	..	..	..	..	..	..	..	..
Engine-houses	..	..	..	..	..	..	..	..	..	..
Markets	..	..	..	..	..	..	..	..	5	..
Court-houses	..	..	..	..	..	..	..	..	..	..
Breweries	..	..	..	..	..	..	1	..	..	..
Bath-houses	..	..	..	..	..	..	..	..	..	1
Railroad stations	..	..	..	..	..	..	..	..	..	..
Electric-light stations	..	..	..	..	..	1	..	..	..	..
Convents	..	..	..	..	..	..	..	..	..	..
Boiler-houses	..	..	..	..	..	..	..	..	..	..
Laboratories	..	..	..	..	..	..	..	..	..	..
Laundries	..	..	..	..	..	..	..	..	..	..
Depots	..	..	..	..	..	..	..	..	..	..
Alterations	..	..	1	1	1	1	3	1	1	1
Green-houses	..	..	..	..	..	..	..	..	..	..
Halls	..	..	..	..	..	..	..	..	..	..
Drainage	1	1	1	..	..	..	..	1	2	..
Totals	9	5	11	5	23	10	55	21	50	18

n for Plumbing and Drainage during the Year 1891, *arranged according to Wards.*

Wards.														
11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	Totals.
24	401	22	..	3	32	45	11	38	47	12	122	75	5	941
..	455	1	..	..	..	..	3	14	3	5	277	256	226	1,245
3	4	6	1	1	3	2	3	7	4	1	2	4	..	52
1	32	..	3	1	5	2	5	11	..	5	11	8	6	94
1	11	..	..	..	..	3	..	1	1	..	4	2	..	25
..	..	1	1	1	..	2	1	3	..	..	5	1	1	16
..	4	..	..	..	..	..	1	2	1	1	4	..	1	14
1	22	1	5	19	4	4	6	8	5	2	11	5	1	139
..	..	..	..	..	1	..	..	..	..	..	2	..	..	3
..	..	..	..	..	1	..	..	2	..	1	..	..	..	4
..	..	..	..	..	..	1	..	..	..	..	..	..	..	2
..	..	..	..	..	..	..	..	2	..	..	..	..	..	2
..	1	..	..	..	..	..	4	1	1	1	1	..	..	18
..	..	..	..	..	..	..	..	..	1	..	..	1	..	3
..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
..	1	..	..	1	..	..	..	..	..	..	..	1	..	3
..	1	..	..	..	..	..	1	..	..	..	..	..	..	7
..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
..	1	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	1	1	..	..	..	..	..	1	..	..	..	..	4
..	1	..	..	..	..	..	..	..	..	..	..	1	1	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
..	..	..	..	..	..	1	..	..	..	..	..	..	1	2
..	2	..	..	..	..	..	1	..	..	..	..	..	..	3
..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
..	6	1	..	..	6	2	..	4	2	4	9	2	..	46
..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
..	2	..	..	..	..	..	..	..	..	..	..	..	..	2
..	59	..	..	1	..	..	3	14	1	2	45	10	2	143
30	1,004	33	11	27	52	62	39	108	68	35	494	366	244	2,780

Detailed Statement as to Wards of the Number of Tenements for which Plans were Filed and Reported on, for Light and Ventilation, during the Year 1891, *Showing the Number of Tenement-houses in each Ward, Arranged According to the Number of Families per Floor.*

Ward.	Families per Floor.								Lodging-Houses.	Totals.	Altera-tions.	Grand Total.
	First.	Second.	Third.	Fourth.	Fifth.	Sixth.	Seventh.	Eighth.				
First	..	1	..	..	..	..	..	..	..	1	..	1
Second	..	..	..	..	..	..	..	..	..	..	..	..
Third	..	..	..	..	..	..	..	..	..	..	..	..
Fourth	..	..	..	2	..	..	..	..	1	3	1	4
Fifth	..	..	1	..	..	..	..	..	..	1	1	2
Sixth	1	2	1	3	..	..	..	..	..	7	1	8
Seventh	6	8	2	31	1	2	..	..	..	50	9	59
Eighth	2	3	1	3	1	..	..	..	..	10	1	11
Ninth	1	16	8	9	3	..	..	..	..	37	..	37
Tenth	..	3	..	4	..	..	1	..	1	9	2	11
Eleventh	..	2	..	14	..	..	..	2	..	18	1	19
Twelfth	53	322	55	37	..	..	1	..	..	468	14	482
Thirteenth	..	1	1	18	1	2	1	..	..	24	2	26
Fourteenth	..	..	..	..	..	..	..	..	1	1	..	1
Fifteenth	1	3	1	1	..	..	..	..	..	6	1	7
Sixteenth	2	8	18	7	..	..	..	..	..	35	6	41
Seventeenth	1	2	6	24	1	1	..	..	..	35	2	37
Eighteenth	..	2	2	2	..	..	..	..	..	6	..	6
Nineteenth	5	14	5	9	..	..	1	..	..	34	7	41
Twentieth	1	8	20	12	..	..	..	..	..	41	4	45
Twenty-first	2	4	3	8	..	..	..	..	..	17	4	21
Twenty-second	24	59	8	37	1	..	..	..	..	129	7	136
Twenty-third	2	71	5	9	..	..	..	..	..	93	5	98
Twenty-fourth	8	..	..	..	..	..	..	..	..	8	..	8
Total	115	529	137	230	8	5	4	2	3	1,033	68	1,101

Respectfully submitted,

W. H. TITUS, Acting Chief Inspector.

HEALTH DEPARTMENT OF THE CITY OF NEW YORK,
SANITARY BUREAU,
NEW YORK, January 1, 1892.

W. A. EWING, M. D., *Sanitary Superintendent:*

SIR—I have the honor to submit the following report of the work performed by the Division of Foods, Chemical analyses, and Offensive Trades, for the year 1891 :

Inspectors on duty	19
Sanitary Police on duty	8

SUMMARY.

Total number inspections	236,182
Total number analyses	1,631
Total number citizens' complaints received	1,007
Total number complaints made and returned to Sanitary Superintendent	263
Total number citizens' complaints held over since last report	28
Total number original complaints by Inspectors	104
Total number citizens' complaints returned for orders	159
Total number citizens' complaints returned as negative	773
Total number citizens' complaints under observation	75
Total number days at Court or Department	2,835
Total number arrests	193
Total number held on bail	177
Total number trials at Special and General Sessions	165
Total amount of fines	$4,416
Total number pounds of milk, fruit and foods, meat and fish, condemned and seized	2,961,164

MILK INSPECTORS.

Inspectors on duty	6
Number inspections	96,377
Number specimens examined	146,822
Number analyses of milk	2
Number citizens' complaints investigated	44
Number original complaints by Inspectors	0
Number days at Court or Department	626
Number special day inspections	152
Number early morning inspections	45
Number nights special work	74
Number quarts adulterated milk destroyed, 3,488 pounds	1,744
Number days in country or at Laboratory	426
Number arrests	186
Number held on bail	170
Number trials at Special or General Sessions	158
Amount of fines	$4,286

FRUIT AND FOOD INSPECTORS.

Inspectors on duty	2
Number of inspections	42,018
Number of pounds of fruit and food condemned	1,343,919
Number of pounds of fruit condemned	1,142,738
Number of pounds of vegetables	182,115
Number of pounds of canned goods	1,866
Number of pounds of confectionery	0
Number of pounds of groceries	17,200
Total	1,343,919

Number of citizens' complaints investigated	81
Number of original complaints by Inspectors	0
Number of days at Court or Department	333
Number of nights of special work	8
Number of arrests	2
Number held on bail	2
Number of trials at Special or General Sessions	2
Amount of fines	$50
Number of inspections of commission houses	869
Number of inspections of auction houses	951
Number of inspections of stores	12,562
Number of inspections of licensed venders	11,913
Number of inspections of vessels	877
Number of inspections of railroad depots	935
Number of inspections of stands	12,690
Number of inspections of markets	1,216
Number of inspections of ice-houses	5

Condemned and Seized.	Pounds.	Condemned and Seized.	Pounds.
Apples	51,280	Cauliflowers	150
Apricots	600	Canned goods	1,780
Assorted fruits	39,350	Cabbages	4,600
Bananas	83,905	Cocoanuts	3,260
Berries	160	Cherries	6,378
Baking powder	1,280	Corn starch	75
Beets	1,200	Chestnuts	150
Beans	1,075	Figs	220

Condemned and Seized.	Pounds.	Condemned and Seized.	Pounds.
Groceries	5,160	Pears	8,400
Grapes	25,299	Persimmons	300
Lemons	12,625	Plums	4,485
Melons	489,955	Preserves	100
Macaroni	3,000	Strawberries	2,389
Nuts	2,825	Stringed beans	150
Oranges	205,487	Sardines	86
Onions	150	Sprouts	17,480
Peaches	96,345	Tea	2,875
Potatoes	10,400	Tomatoes	1,800
Pineapples	117,510	Vegetables	141,635

MEAT AND FISH INSPECTORS.

Inspectors on duty	5
Number of inspections	67,929
Number of pounds of meat and fish condemned	1,613,757
Number of citizens' complaints investigated	151
Number of original complaints by Inspectors	2
Number of carcasses of beef condemned	63¾
Number of carcasses of veal condemned	4,314½
Number of carcasses of sheep condemned	805¼
Number of carcasses of hogs condemned	3,482
Total	8,665½
Number of pounds of beef condemned	45,135
Number of pounds of veal condemned	257,742
Number of pounds of sheep condemned	73,415
Number of pounds of hogs condemned	522,230
Total condemned	898,522
Number of pounds of fish condemned	498,480
Number of pounds of assorted meats condemned	17,173
Number of pounds of poultry condemned	198,247
Number of pounds of game condemned	1,335

Number of days at Court or Department	334
Number of nights of special work	29
Number of arrests	5
Number held on bail	5
Number of trials at Special or General Sessions	5
Amount of fines	$80

Number of inspections of fish stores	8,143
Number of inspections of stands	9,136
Number of inspections of licensed venders	8,503
Number of inspections of commission houses	10,565
Number of inspections of butcher shops	10,456
Number of inspections of slaughter-houses	11,686
Number of inspections of packing-houses	1,024
Number of inspections of ice-houses	2,713
Number of inspections of vessels	1,458
Number of inspections of railroad depots	1,641
Number of inspections of stockyards	564
Number of inspections of markets	2,037
Number of inspections of farms	2
Number of inspections of cow stables	1

ASSISTANT CHEMISTS.

Assistant Chemists on duty	3
Number of analyses	1,220
Number of experimental analyses	409
Number of lactometers tested	76
Number of thermometers tested	58
Number of citizens' complaints investigated	7
Number of days at Court or Department	458
Number of nights of special work	32
Number of inspections	21

The analyses made by the Assistant Chemists may be classified as follows:

	No. of Samples.		No. of Samples.
Alkanet	1	Beer	3
Annato	1	Buttermilk	9
Butter	8	Candies	26

	No. of Samples.		No. of Samples.
Cloth	1	Mace	1
Canned goods	2	Medicines	5
Cigars and cigarettes	3	Milk	359
Cleaning mixtures	1	Milk, condensed	111
Cold cream	7	Milk, preserved	29
Cod-liver oil preparations	1	Opium	1
Chicory	1	Pepper	25
Coke and coal	6	Quinine	3
Coffee	1	Sewage	4
Dyes	2	Sardines	1
Experimental	409	Sugar	1
Foods	8	Soups	1
Food preservatives	1	Sambar	1
Grapes	9	Spices	3
Ham	1	Tobacco	1
Human muscle	1	Tea	2
Ice cream	2	Vanilla	1
Incrustation	1	Water	544
Iron sulphate	1	Wall-paper	3
Licorice	1	Wines	1
Meat	27		

The above were examined as follows:

Substance Examined.	Analyzed for—
Alkanet root	Poisonous metals.
Annato seed	"
Buttermilk	Tartaric acid.
Butter	Adulteration.
Coffee	Poisonous metals.
Cigars	"
Cigarettes	"
Cosmetics	"
Cod-liver oil preparations	Percentage of cod-liver oil.
Cloth, stained	Character of stain.
Coke	Percentage of sulphur.

Substance Examined.	Analyzed for—
Coal	Composition.
Canned goods	Poisonous metals, etc.
Candies	Terra alba.
"	Poisonous ingredients.
Clothing fabrics	"
Cleaning mixtures	Injurious ingredients.
Food preservatives	Composition.
Foods	Poisonous metals.
Ginger	"
Gum chicole	"
Gum senegal	"
Grapes	"
Ham	Trichina spiralis.
Ice cream	Poisonous metals.
Licorice	"
Milk	Adulteration.
Milk, condensed	"
Milk, preserved	"
Milk, from diseased animals	Composition.
Medicines, patent	"
Medicinal preparations	"
Malt liquors	"
"	Deleterious ingredients,
Mace	Poisonous metals.
Muscle, human	Trichina spiralis.
Opium	Character.
Pork	Trichina spiralis.
Pimento	Poisonous metals.
Pepper	"
Quinine	"
Soap	"
Sulphate of iron	"
Sambar	"
Sewage	Composition.
Sugar	Adulteration.
Sausage	Trichina spiralis.
Tea	Composition.
"	Poisonous metals.
Tonka bean	"
Tamarinds	"
Tobacco	"
Vanilla essence	Injurious ingredients.

Substance Examined.	Analyzed for—
Wall paper	Arsenic.
Water	Sanitary purity.
"	Character.
"	Metallic contamination.
"	Number of bacteria.
Water, distilled	Impurity.
Wines	Poisonous ingredients.

INSPECTORS OF OFFENSIVE TRADES.

Inspectors on duty	3
Number of inspections	29,837
Number of citizens' complaints investigated	724
Number of original complaints by Inspectors	102
Number of days at Court or Department	984
Number of nights of special work	226
Number of arrests	0
Number held on bail	0
Number of trials at Special or General Sessions	0
Amount of fines	0

The inspections made by the Inspectors of Offensive Trades may be classified as follows :

	Number of Inspections.		Number of Inspections.
Apartment-houses	3	Brass works	1
Auction houses	7	Bulkhead	1
Asphalt factories	3	Blacking factory	1
Ale vault	1	Butter store	1
Aqueducts	4	Bologna factory	1
Asylum	1	Bottling works	2
Bed factory	1	Cigar-box factory	1
Bakeries	52	Cigar stores	3
Blacksmith shops	70	Cigar factories	36
Bone yards	84	Candy factories	18
Boiler factories	39	Candle factories	12
Box factories	389	Calf head cleaning establishments	27
Breweries	84	Carpenter shop	1
Butcher shops	25	Cattle yards	1,009
Brass band	1	Clothes cleaning establishments	242
Bird cage factories	3	Coal yards	11

	Number of Inspections.		Number of Inspections.
Copper works	5	Fish curing establishments	1
Cellars	7	Ferry slips	2
Concrete works	2	Fruit stores	17
Cord factory	1	Fish stores	19
Cold storage warehouses	9	Fire	1
Chemical works	8	Gas engines	43
Chair factory	1	Gas-houses	1,647
Cocoanut factory	1	Gas leaks in mains	175
Candy stand	1	Gas leaks in pipes	69
Carpet cleaning establishments	14	Gas drip wells	2
Chocolate factories	2	Gas in houses	9
Coffee mills	2	Gas holders	22
Cheese factories	11	Gas tanks	15
Cabinet factories	27	Grocery stores	236
Clothing factories	2	Gut-cleaning establishments	140
Dumps (manure)	14	Glue drying establishments	6
Dumps (garbage)	27	Grain drying establishments	2
Dumps (earth)	9	Glass works	1
Distilleries	6	Hog yards	202
Dogs barking	3	Hospitals	14
Drug mill	1	Hydrants	3
Dynamos	13	Hide cellars	133
Drug stores	18	Hat stores	6
Dye works	99	Hair picking establishments	6
Dry goods house	1	Hotels	35
Excavations	104	Hammock factory	1
Elevator apparatus	5	Hydraulic press	1
Elevator factories	2	Ice machines	146
Fat rendering establishments	1,100	Junk shops	10
Fertilizer machinery	103	Kindling wood factories	10
Foundries	227	Laboratories	3
Fur stores	9	Laundries	8
Fur dressing establishments	1	Leather factories	4
Factory smoke-pipes	4	Lime-kilns	97
Factory noises	20	Locomotives	48
Furniture stores	68	Lodging-houses	2
Flour mills	3	Lamp-shade factories	3
Flax mill	1	Liquor stores	2

	Number of Inspections.		Number of Inspections.
Markets	14	Piano factories	2
Manufacturing buildings	11	Railroads	197
Machine shops	16	Railroad depots	2
Macaroni factory	1	Restaurants	227
Moulding mills	2	Rubber works	6
Metal plating	3	Railroad, elevated	1
Mineral water factory	1	Rag shops	46
Mattress factories	4	Roundhouses	63
Milk depots	8	Sausage factories	12
Medicine factories	2	Sawmills	339
Malt house	1	Shooting gallery	1
Meat curing establishments	1	Sewers	129
Notion house	1	Silk factories	13
Offices	336	Smelting works	73
Oil pipes	10	Smoke-houses	1,194
Odors	6	Slaughter-houses	14,060
Odors (Hunter's Point)	1	Slaughter-houses (for chickens)	4
Offal docks	204	Snuff factory	1
Oxygen factories	2	Soap factories	205
Offal wagons	12	Stables	125
Oil works	32	Stone yards	13
Packing houses	409	Stores	255
Piano playing	2	Steam exhaust-pipes	9
Pickle factories	20	Steam-pipes	31
Private houses	861	Schools	6
Printing houses	43	Spice mills	28
Provision houses	102	Sash and blind factories	3
Plumbing shops	4	Soda water	8
Pumping engines	2	Storage warehouses	31
Public baths	4	Subway pipes	59
Piers	1,032	Skin dressing establishments	1
Photograph gallery	1	Stone machines	9
Plaster mills	6	Steam engines	13
Paper mill	1	Streets	10
Pop-corn factory	1	Silver plating establishments	1
Police stations	3	Stove stores	5
Pavement	1	Sidewalks	5
Ponds (Central Park)	8	Steam elevator	1

	Number of Inspections.		Number of Inspections.
Steamboat landing	1	Vacant lots	6
Special inspections	16	Varnish factories	4
Sewing machine	1	Water	18
Skating rink	1	Water (wells)	11
Tailor shops	2	Water (hydrants)	1
Tanneries	28	Water (Croton)	1,166
Tenement-houses	662	Water (tanks)	12
Tripe factories	74	Wire factories	12
Tinware factories	1	Wool pulling establishments	8
Tobacco factories	5	Warehouses	8
Theatrical goods	1	Wheelwright shops	16
Vinegar factories	6	Wood factories	8
Vender's wagons	93	Wood yards	11
Vineyards	8	Yards	3

ASSISTANT CHEMISTS.

The more important work performed by the Assistant Chemists during the year is as follows:

1st. *Examination of Water.*—As in the report for 1890, this work may be classified as follows:

(a) Determination of character.—Made on samples from damp or flooded cellars, to determine whether the sample submitted is Croton, surface water, etc.

(b) Determination of metallic impurity.—Made on samples from tanks used for storage of Croton water in tenement and apartment houses, etc.

(c) Determination of sanitary purity.—This includes the regular weekly analyses of the Croton, analyses of a large number of extra samples of Croton taken at various points throughout the city during the summer and early fall, of samples taken on the Croton water-shed during August and September, in the course of the sanitary survey of that region, and of samples from wells on New York Island.

Bacteriological examinations of Croton water were also made during the latter part of the year.

Croton Water.—The results of the regular weekly analyses are given in Table No. 1, and are averaged for each month of the year. "Phosphates," "odor," "color," and "hardness after boiling" are omitted, for the reasons given in report for 1890.

Tables Nos. 2, 3, 4, 5 and 6 give results of analyses of samples taken weekly from various points throughout the city, during and subsequent to the sanitary survey of the Croton water-shed made during the summer. These analyses are given in detail.

A comparison of the yearly average of the regular weekly analyses with those of former years (see report for 1890) shows a continuance of the steady increase in "total solids," "mineral matter," and "hardness before boiling," previously noted. "Nitrogen in nitrates" has markedly decreased as compared with the average for 1890, while "chlorine in chlorides," "free ammonia," and "albuminoid ammonia" have increased (the latter to a considerable extent) and "nitrogen in nitrites" has made its appearance for the first time.

ANALYSES OF CROTON WATER FOR 1891.

TABLE No. 1.—*Samples taken from Hydrant, corner of Bleecker and Mott or Mulberry Streets.*

Parts by weight in 100,000.

Month.	Temperature.	Appearance.	Chlorine in Chlorides.	Equivalent to Sodium Chloride.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness before boiling, Equivalent to Carbonate of Lime.	Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by evaporation).
January..	35½°	Very slightly turbid.....	0.187	0.308	None.	0.0291	0.0007	0.0118	0.0394	3.88	1.64	5.40	7.04
February.	35¾°	Slightly turbid...	0.170	0.280	"	0.0294	0.0019	0.0079	0.0375	3.53	2.30	4.98	7.28
March ...	38¼°	Somewhat turbid.	0.174	0.287	"	0.0322	0.0009	0.0093	0.0405	3.40	1.48	5.48	6.96
April.....	47¾°	Turbid.....	0.187	0.308	"	0.0268	Trace.	0.0106	0.0355	3.43	1.48	6.23	7.71
May.....	59¾°	Somewhat turbid.	0.192	0.317	"	0.0148	"	0.0130	0.0255	4.36	2.08	6.64	8.72
June.....	67½°	Slightly turbid...	0.189	0.311	"	0.0134	"	0.0108	0.0223	4.96	2.08	7.50	9.58
July.....	70¾°	Somewhat turbid.	0.196	0.322	0.00002	0.0098	"	0.0125	0.0201	4.66	1.88	6.82	8.70
August...	73¾°	Turbid.....	0.193	0.318	0.0001	0.0314	0.0006	0.0104	0.0406	4.39	2.03	4.90	6.93
September	70°	Slightly turbid...	0.198	0.327	0.00006	0.0354	0.0013	0.0154	0.0492	4.51	2.30	5.18	7.48
October ..	61°	Very slightly turbid.....	0.208	0.343	0.00001	0.0301	0.0014	0.0105	0.0399	4.93	2.10	5.76	7.86
November	42°	Slightly turbid...	0.237	0.390	None.	0.0333	0.0021	0.0086	0.0421	5.00	1.88	6.93	8.81
December	39°	Turbid.....	0.329	0.543	"	0.0323	0.0030	0.0131	0.0456	4.58	2.06	6.80	8.86
Average	53¾°	.....	0.205	0.338	0.000015	0.0265	0.0010	0.0112	0.0366	4.30	1.94	6.05	7.99

Abbreviations used in the following tables:

t.—Turbid.
s. t.—Slightly turbid.
v. s. t.—Very slightly turbid.
v. t.—Very turbid.

y. b.—Yellowish brown.
l. y. b.—Light yellowish brown.
v. l. y. b.—Very light yellowish brown.
m.—Marshy.

f. m.—Faint marshy.
s. m.—Strong marshy.
v. f. m.—Very faint marshy.

TABLE NO. 2.—*Samples taken from Hydrant, corner of Bridge and State Streets.*

Parts by weight in 100,000.

	DATE.								
	AUG. 27.	SEPT. 4.	SEPT. 10.	SEPT. 18.	OCT. 2.	OCT. 9.	OCT. 23.	OCT. 29.	NOV. 6.
Appearance	.....	v. s. t.	t.	v. s. t.	s. t.	s. t.	s. t.	s. t.	s. t.
Color	.....	l. y. b.	l. y. b.	l. y. b.	l. y. b.	v. l. y. b.	l. y. b.	l. y. b.	l. y. b.
Odor (heated to 100° Fahr.)	m.	f. m.	m.	f. m.	f. m.	f. m.	f. m.	f. m.	f. m.
Chlorine in Chlorides	0.180	0.206	0.228	0.210	0.210	0.210	0.228	0.228	0.245
Equivalent to Sodium Chloride	0.297	0.339	0.375	0.346	0.346	0.346	0.375	0.375	0.404
Phosphates	None.	None.	None.	None.	None.	None.	None.	None.	None.
Nitrogen in Nitrites	"	0.0001	Trace.	"	"	0.0001	"	"	.....
Nitrogen in Nitrates	0.0988	0.0659	0.0564	0.0317	0.0325	0.0165	0.0325	0.0329	.....
Free Ammonia	0.0005	Trace.	0.0015	0.0015	0.0005	Trace.	0.0005	Trace.	Trace.
Albuminoid Ammonia	0.0110	0.0140	0.0115	0.0105	0.0145	0.0180	0.0065	0.0105	0.0090
Hardness equivalent to Carbonate of Lime { Before boiling	4.51	4.40	4.30	4.51	5.66	5.13	5.87	5.66	5.81
Hardness equivalent to Carbonate of Lime { After boiling.	4.51	4.30	4.30	4.51	5.66	5.13	5.87	5.66	5.81
Organic and Volatile (loss on ignition)	2.00	1.30	0.40	1.00	1.80	1.30	2.00	1.60	2.00
Mineral matter (non-volatile)	6.10	5.50	4.70	7.50	7.20	6.30	9.50	8.40	5.40
Total solids (by evaporation)	8.10	6.80	5.10	8.50	9.00	7.60	11.50	10.00	7.40

TABLE NO. 3.—*Samples taken from Hydrant, corner of Fifty-first Street and Fifth Avenue*

Parts by weight in 100,000.

	DATE.							
	SEPT. 4.	SEPT. 11.	SEPT. 19.	OCT. 2.	OCT. 8.	OCT. 23.	OCT. 29.	NOV. 6.
Appearance	s. t.	s. t.	v. s. t.	t.	s. t.	s. t.	s. t.	t.
Color	l. y. b.	l. y. b.	l. y. b.	y. b.	v. l. y. b.	v. l. y. b.	v. l. y. b.	l. y. b.
Odor (heated to 100° Fahr)	f. m.	f. m.	f. m.	f. m.	f. m.	f. m.	f. m.	f. m.
Chlorine in Chlorides	0.228	0.263	0.228	0.245	0.210	0.228	0.228	0.245
Equivalent to Sodium Chloride	0.375	0.433	0.375	0.404	0.346	0.375	0.375	0.404
Phosphates	None.	None.	None.	None.	None.	None.	None.	None.
Nitrogen in Nitrites	0.0003	0.0003	0.0001	0.0002	"	0.0002	"	.....
Nitrogen in Nitrates	0.0404	0.0589	0.0144	0.0461	0.0387	0.0329	0.0325	.....
Free Ammonia	0.0110	0.0085	0.0025	0.0040	0.0030	Trace.	0.0005	Trace.
Albuminoid Ammonia	0.0190	0.0150	0.0225	0.0230	0.0140	0.0120	0.0105	0.0090
Hardness equivalent to Carbonate of Lime { Before boiling	4.94	4.83	4.51	4.57	5.09	5.87	5.22	5.74
Hardness equivalent to Carbonate of Lime { After boiling	4.83	4.83	4.51	4.35	5.09	5.87	5.22	5.74
Organic and Volatile (loss or ignition)	3.00	2.30	2.20	3.00	1.80	1.50	1.00	2.00
Mineral matter (non-volatile)	6.00	5.30	5.50	6.70	6.40	10.00	5.50	5.50
Total solids (by evaporation)	9.00	7.60	7.70	9.70	8.20	11.50	6.50	7.50

TABLE NO. 4.—*Samples taken from Central Park Reservoir.*

Parts by weight in 100,000.

	DATE.						
	AUG. 27.	SEPT. 4.	SEPT. 11.	SEPT. 19.	OCT. 2.	OCT. 10.	OCT. 23.
Appearance	.....	t.	v. t.	s. t.	s. t.	s. t.	s. t.
Color	.....	l. y. b.	y. b.	v. l. y. b.	l. y. b.	l. y. b.	l. y. b.
Odor (heated to 100° Fahr.)	s. m.	f. m.	f. m.	s. m.	m.	m.	f. m.
Chlorine in Chlorides	0.189	0.473	0.263	0.245	0.263	0.210	0.245
Equivalent to Sodium Chloride	0.311	0.779	0.433	0.404	0.433	0.346	0.404
Phosphates	None.	None.	None.	None.	None.	None.	None.
Nitrogen in Nitrites	0.0003	0.0001	0.0001	0.0001	0.0002	0.0003	0.0003
Nitrogen in Nitrates	0.0132	0.0255	0.0815	0.0128	0.0313	0.0708	0.0325
Free Ammonia	0.0015	0.0190	0.0210	0.0045	0.0020	0.0040	0.0005
Albuminoid Ammonia	0.0210	0.0290	0.0315	0.0255	0.0180	0.0170	0.0185
Hardness equivalent to Carbonate of Lime — Before boiling	4.46	4.35	4.30	4.83	4.57	5.05	5.87
Hardness equivalent to Carbonate of Lime — After boiling	4.46	4.30	4.30	4.62	4.57	4.92	5.87
Organic and Volatile (loss on ignition)	2.20	1.90	2.00	2.70	1.80	2.30	1.70
Mineral matter (non-volatile)	4.70	6.10	6.50	5.10	6.20	5.50	8.30
Total solids (by evaporation)	6.90	8.00	8.50	7.80	8.00	7.80	10.00

TABLE NO. 5.—*Samples taken from Gate-house, One Hundred and Thirty fifth Street.*

Parts by weight in 100,000.

	DATE.						
	*AUG. 27.	SEPT. 4.	SEPT. 11.	SEPT. 19.	OCT. 3.	OCT. 10.	OCT. 23.
Appearance	.....	t.	s. t.	v. s. t.	t.	s. t.	s. t.
Color	.....	y. b.	y. b.	l. y. b.	y. b.	v. l. y. b.	v. l. y. b.
Odor (heated to 100° Fahr.)	v. f. m.	f. m.	f. m.	m.	m.	f. m.	f. m.
Chlorine in Chlorides	0.189	0.228	0.228	0.245	0.263	0.210	0.280
Equivalent to Sodium Chloride	0.311	0.375	0.375	0.404	0.433	0.346	0.462
Phosphates	None.	None.	None.	None.	None.	None.	None.
Nitrogen in Nitrites	0.0001	Trace.	Trace.	Trace.	0.0002	0.0003	0.0003
Nitrogen in Nitrates	0.0313	0.0366	0.0371	0.0399	0.0156	0.0556	0.0329
Free Ammonia	0.0020	0.0055	0.0050	0.0015	0.0010	0.0025	Trace.
Albuminoid Ammonia	0.0110	0.0360	0.0300	0.0215	0.0220	0.0165	0.0155
Hardness equivalent to Carbonate of Lime — Before boiling	4.40	5.37	5.10	4.62	4.65	5.00	5.66
Hardness equivalent to Carbonate of Lime — After boiling	4.29	5.37	4.99	4.62	4.57	5.00	5.66
Organic and Volatile (loss on ignition)	2.30	2.20	2.00	2.20	2.30	1.90	1.60
Mineral matter (non-volatile)	5.40	7.00	5.30	7.50	5.00	5.70	9.90
Total solids (by evaporation)	7.70	9.20	7.30	9 70	7.30	7.60	11.50

* One Hundred and Twenty-fifth street and Third avenue.

TABLE NO. 6.—*Samples taken from Forty-second Street Reservoir.*

Parts by weight in 100,000.

	DATE.						
	AUG. 27.	SEPT. 4.	SEPT. 11.	SEPT. 19.	OCT. 2.	OCT. 8.	OCT. 23.
Appearance	.....	v. t.	v. t.	s. t.	s. t.	s. t.	s. t.
Color	.....	l. y. b.	y. b.	l. y. b.	l. y. b.	v. l. y. b.	v. l. y. b.
Odor (heated to 100° Fahr.)	s. m.	f. m.	f. m.	m.	m.	f. m.	f. m.
Chlorine in Chlorides	0.189	0.219	0.228	0.245	0.245	0.210	0.228
Equivalent to Sodium Chloride	0.311	0.361	0.375	0.404	0.404	0.346	0.375
Phosphates	None.	None.	None.	None.	None.	None.	None.
Nitrogen in Nitrites	0.0003	0.0002	0.0001	0.0001	"	"	0.0003
Nitrogen in Nitrates	0.0244	0.0362	0.0342	0.0239	0.0124	0.0033	0.0325
Free Ammonia	0.0005	0.0160	0.0085	0.0010	0.0050	0.0060	0.0095
Albuminoid Ammonia	0.0210	0.0250	0.0245	0.0215	0.0260	0.0120	0.0095
Hardness equivalent to Carbonate of Lime: Before boiling	4.56	4.35	4.30	4.62	4.57	5.13	5.48
Hardness equivalent to Carbonate of Lime: After boiling	4.56	4.30	4.30	4.51	4.35	5.09	5.48
Organic and Volatile (loss on ignition)	1.50	1.10	1.00	2.00	3.20	1.80	1.60
Mineral matter (non-volatile)	5.80	5.11	6.00	4.90	6.30	6.50	7.90
Total solids (by evaporation)	7.30	6.20	7.00	6.90	9.50	8.30	9.50

Bacteriological Examinations.—Since December 1, 1891, in addition to the samples for chemical analysis, samples of Croton water have been taken weekly for bacteriological investigation. The number of living bacteria per cubic centimeter has been determined by counting the colonies in gelatin plate cultures made from these samples, with results as given below. Work on the separation and identification of the various forms of bacteria occurring in Croton water has been carried on at the same time, and is now in progress. This work, supplementing the chemical analyses, will prove of value as a help in determining the present sanitary quality of Croton water, and its deterioration or improvement from a sanitary standpoint as time goes on. To provide a proper basis for judgment as to the sanitary significance of the different species of bacteria found in Croton, it will be necessary to obtain and investigate samples taken on the water-shed itself, from lakes, springs, streams, etc. These samples should be of two classes, viz.: (a) from sources known to be contaminated with sewage, and (b) from sources known to be free from such contamination.

The investigations outlined above have been carried on at the "Carnegie Laboratory," the biological laboratory of the Bellevue Hospital Medical College, through the courtesy and with the kind assistance of Dr. Edward K. Dunham, Professor of Histology and Bacteriology in the college.

TABLE No. 7.—*Number of Bacteria in Croton Water.*

Samples taken from hydrant, corner of Bleecker and Mott streets.

DATE.	NUMBER OF LIVING BACTERIA PER CUBIC CENTIMETER.
December 4	1,826
" 11	1,859
" 18	4,597
" 24	2,130
" 31	11,203

Sanitary Survey of the Croton Water-shed.—During the months of August and September, 1891, accompanied by Assistant Chemist Beebe, a sanitary survey was made of the Croton water-shed, of which the following is a detailed report:

HEALTH DEPARTMENT OF THE CITY OF NEW YORK,
NEW YORK, November 15, 1891.

W. A. EWING, M. D., *Sanitary Superintendent:*

SIR.—We have the honor to submit the following report of an inspection of the Croton water-shed during the months of August and September, 1891, together with the maps and charts relating thereto.

The analyses accompanying this report were made by Assistant Chemists Berry and Lederle, the more important determinations being duplicated. The maps and charts were prepared by Assistant Chemists Beebe and Berry.

INTRODUCTORY.

The Croton water-shed lies mainly in the State of New York, in Westchester and Putnam Counties, extending into the southern portion of Dutchess County, and, on the east, into the State of Connecticut, to a small extent. Above Croton Dam, at which point the old and new aqueducts supplying New York City with water originate, the area of the shed is, in round numbers, three hundred and thirty-nine square miles, with a length of about thirty-three miles, and an average width of about eleven miles. The West, Middle and East Branches of the Croton river rise in the southern portion of Dutchess County, about sixy-eight miles from the lower end of New York City, and unite to form the main river near the southern edge of Putnam County. From this point the river flows in a general southwesterly direction through Westchester County to Croton Dam, about forty miles north of the lower end of New York City, and thence into the Hudson river at Croton Point.

The main tributaries of the Croton river are as follows: On the east, the Titicus and Cross rivers and Kisco brook, the latter flowing into Croton Lake; on the west, the Muscoot river. Reservoirs "I," "G" and "E" are located in Putnam County, on the East, Middle and West Branches, respectively, and are now used for storage purposes, a portion of Reservoir "I" being still, however, in course of construction. Reservoirs "D," "A" and "M" are in course of construction on the West Branch, Muscoot river and Titicus river, respectively.

The rock of the water-shed is metamorphic in character, consisting principally of gneiss. Limestone, dolomite, micaceous and talcose slates, granite and serpentine exist in small amount, and there are several deposits of magnetic iron ore, notably at the Mahopac mines, near Lake

Mahopac, Tilly Foster mine, on Middle Branch Reservoir ("G"), and the Croton magnetic iron mine, near the Middle Branch, below the reservoir. The surface soil is very porous in character, consisting largely of sand and gravel. Deposits of clay or "hard pan" are found to some extent, but usually at a considerable depth. The river-beds consist mainly of solid rock, or of gravelly deposits on a rock bottom. There are, however, a number of peat-like deposits on the water-shed, aggregating in all about two square miles, of which the largest, about five hundred acres in extent, is located on the East Branch of the Croton river, above Reservoir "I." A large number of swamps are also found, usually, however, small in extent; and it is to these and to the peat deposits that the "yellowish brown" color of Croton water is due.

The only *natural* contamination of the water on the water-shed is that due to the swamps and peat deposits noted above, and to the growth and decay of vegetation in and near the various streams, etc. With these exceptions, water from sources uncontaminated by animal refuse is of excellent quality, being low in mineral matter and chlorides and very "soft" in character.

The following table, compiled from data furnished by the Department of Public Works, gives the annual flow of the Croton river in gallons, the flow in inches over the entire water-shed, the annual rain-fall, and the flow of river in per cent. of rain-fall.

The figures for the rain-fall are those obtained by observations at Boyd's Corners Reservoir ("E"), the rain-fall at this point being considered a fair average of that over the entire shed.

For the present year, the only figures obtainable are those giving the rain-fall in inches to November 1.

Year.	Flow of River, in Gallons.	Flow of River, in Inches, over Entire Water-shed.	Rain-fall, in Inches.	Flow of River, in per cent. of Rain-fall.
1880	91,117,423,000	15.32	38.52	40
1881	129,926,645,000	20.16	46.33	44
1882	150,833,641,000	25.35	55.20	46
1883	94,876,593,000	15.95	43.15	37
1884	151,180,907,000	25.41	53.71	47
1885	115,903,402,000	19.48	45.99	42
1886	132,294,573,000	22.24	47.59	47
1887	167,826,000,000	28.38	61.63	46
1888	224,943,000,000	37.81	63.51	59
1889	203,647,000,000	34.22	54.50	63
1890	164,756,000,000	27.46	54.44	50
1891	.....	.....	*38.70	..

* To November 1.

SCOPE OF THE INSPECTION.

The territory covered by inspection was as follows: Sodom and Bog Brook Reservoirs (Double Reservoir "I"), Middle Branch Reservoir ("G"), Boyd's Corners Reservoir ("E"), the East, Middle and West Branches of the Croton river below the reservoirs, Lakes Gleneida and Gilead, and the tributaries to all of the above. Up to this point, the inspection was practically complete,

cluding all tributaries, even the smallest. The inspection continued with Lake Mahopac, the Muscoot, Titicus and Cross rivers, the Croton river from the junction of its branches to its entrance into Croton Lake, and the lake itself, to Croton Dam. In this latter portion of the work, tributaries were inspected only at points, where the road following the river bank or lake shore crossed a tributary. In the case of Kisco brook, a tributary to Croton Lake, whose branches drain the town of Mount Kisco and Newcastle, these branches were inspected. That portion of the water-shed lying north of the reservoirs was not inspected.

An important feature of the work was the collection of samples of water for analysis throughout the territory inspected. Samples were taken from the inlet and outlet of each of the reservoirs and lakes, and from their main tributaries, and in the case of Croton Lake, from all of its tributaries, large or small, which drained inhabited territory, except in several instances where the brooks had run dry. Samples were also taken from the rivers at frequent intervals, from points above and below towns or villages through which the river flowed, and from the main tributaries, near their outlets. In the cases of Kisco brook, whose branches drain the towns of Newcastle and Mount Kisco, as stated above, and a small tributary to the Croton river, which drains the town of Golden's Bridge, samples were taken above and below the towns.

During the time occupied by our inspection, the amount of rain-fall on the water-shed was exceedingly small, and an especially favorable opportunity was therefore afforded to secure samples comparable one with another. The only natural cause by which the relative composition of samples could be affected, even when taken at the extreme limits of the time occupied by inspection, was the concentration of impurities, through the gradual diminution in bulk of the various streams, etc.

SOURCES OF PROBABLE CONTAMINATION—DETAILED ENUMERATION.

The following is a detailed enumeration of the sources of probable contamination discovered on that portion of the water-shed covered by our inspection. The numbers in the second column refer to the maps accompanying this report. In the case of tributaries to rivers, lakes, reservoirs, etc., the inspections are numbered from the farthest point up the stream covered by inspection, down to its junction with the main river, etc. In the fifth column an asterisk (*) indicates that the special source of contamination noted is on the water's edge, or on the edge of a precipitous bank above the water. In the latter case, the approximate height of the bank is given under the head of "Remarks." When the height of the bank is noted, a measurement given in the fifth column indicates the horizontal distance of the source of contamination noted from the water's edge, and not from the edge of the bank, unless special mention is made under "Remarks." In the case of reservoirs, measurements are given from high-water mark.

Dwellings or privies, provided with drain-pipes discharging directly into any water-course, are tabulated as on the water's edge. Stables are included under the term "barn" in the enumeration. This item is used as a designation for a building in which horses or cattle are housed, and not for one in which hay, grain, etc., is stored.

Before each group of inspections there is given a general description of the water-courses, reservoirs, etc., inspected, mention being made of those localities where the sources of probable contamination are most abundant. Appended to each group is a classification of the sources of contamination, according to character and distance from the water's edge. In order to avoid com-

plexity in these classifications, blacksmith and wheelwright shops are classed as "factories," and house-drains and wash-houses as "dwellings."

Nuisances which, in our judgment, are so situated as not to be probable sources of contamination, are not included in the report.

The maps accompanying the report were prepared from the map of the Croton water-shed, made in 1889 for the Commissioners of the New Aqueduct, by W. E. Worthen. Probable sources of contamination are inserted at points determined by our inspections. The scale to which the maps are drawn is not sufficiently large to permit of the exact location of nuisances thereon, so far as distance from the water's edge is concerned, but in other respects they are accurate.

Double Reservoir "I," including Sodom and Bog Brook Reservoirs and the East Branch of the Croton River below the Reservoir, with their Tributaries.

Reservoir "I."—This reservoir is located in Putnam County, near the eastern limit of the water-shed, and about two miles east of the town of Brewster. It consists of two basins—Sodom Reservoir and Bog Brook Reservoir—connected by a tunnel. The combined drainage area is 77 square miles, of which that portion drained by Sodom Reservoir is much the larger. Bog Brook Reservoir will, when completed, serve practically as an overflow from Sodom Reservoir, thus largely increasing the storage capacity, which latter is estimated at nine billion gallons. At the time of our inspection, Sodom Reservoir only was in use. The small village of Milltown is located at its northeastern extemity. The main feeder of the reservoir is the East Branch of the Croton river, which enters it at Milltown. A large brook, Peach Lake outlet, enters the reservoir from the south.

Since July 15, 1891, fifty million gallons of water have been drawn from this reservoir daily, or one-third of the entire supply carried by the Old and New Aqueducts to New York City.

The water from the reservoir is aerated by passing through a fountain at the base of the dam. At this point a strong odor of sulphureted hydrogen was noted, indicating that the water of the reservoir contained vegetable organic matter in a state of decay. Most of the odor of sulphureted hydrogen is removed from the water by its aeration at the fountain. A considerable growth of weeds was noted at a number of places on the banks of the reservoir, between high-water mark and the present water-level. We were informed by a number of the prominent citizens of Brewster that the bottom and banks of the reservoir were not thoroughly cleared of vegetable growth before flooding; also that the sites of a number of privies, several barns and stables, and the quarters occupied by the laborers engaged in building the reservoir, were not cleaned out before the latter was flooded.

East Branch of the Croton River.—From the fountain at Sodom Reservoir this stream flows first northerly for a short distance, and then in a general southwesterly direction to its junction with the Middle and West Branches at Croton Falls, about six miles below the reservoir. It passes through the towns of Sodom (Southeast Centre), Brewster and Croton Falls. Its only tributary of importance below the reservoir is Tonetta brook, which flows through and drains the western portion of Brewster, and joins the river at the southwest extremity of the town. This brook is practically the public sewer of that portion of the town through which it flows, as will be seen from the record of inspections below. The configuration of the land is such that the general drainage of Sodom and Brewster is towards the river, and the same may be said of Croton Falls.

A cemetery is located near the south bank of the river, opposite Brewster, but at such a distance as not to be a probable source of contamination.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Aug. 29	1	Sodom Reservoir, north side, at Division Engineer's Office	Privy	*	Loose stone vault, full, overflowed at high water. City property.
" 29	2	Sodom Reservoir, north side, at cement-testing house	"	*	Loose stone vault. City property.
" 29	3	Sodom Reservoir, north side	Barn	500	Open drain runs alongside barn to reservoir.
" 29	4	Sodom Reservoir, north side, at Assistant Engineer's Office	Privy	200	Uncemented earth vault. City property.
" 29	4	Sodom Reservoir, north side, at Assistant Engineer's Office	Barn	200	City property.
" 29	5	Sodom Reservoir, north side. Barnum Estate	Privy	50	Uncemented earth vault. City property.
" 29	6	Small tributary from east, entering Sodom Reservoir at Milltown Bridge, northeast end of reservoir	Two privies	*	Uncemented earth vault; schoolhouse privies.
" 29	6	Small tributary from east, entering Sodom Reservoir at Milltown Bridge, northeast end of reservoir	Barn	*	
" 29	6	Small tributary from east, entering Sodom Reservoir at Milltown Bridge, northeast end of reservoir	Poultry-house	*	
" 29	6	Small tributary from East, entering Sodom Reservoir at Milltown Bridge, northeast end of reservoir	Privy	*	Wooden box vault, in good condition.
" 29	7	Sodom Reservoir, north shore, near northwest end	Dwelling	500	On open drain running to reservoir down steep slope.
" 29	7	Sodom Reservoir, north shore, near northwest end	Pig-pen	500	On open drain running to reservoir down steep slope.
" 29	8	Bog Brook Reservoir, north end	Privy	60	Uncemented earth vault.
" 29	8	" "	Barn	60	Both barn and privy on edge of gully, through which small brook runs into reservoir.
" 29	9	Sodom Reservoir, south side	Privy	50	Uncemented earth vault. City property.
" 29	9	" "	Barnyard	50	City property.
" 29	9	" "	Barn	*	Now unused; manure scattered about. City property.
" 30	10	East Branch Croton river, north bank, between Sodom Dam and spillway	Dwelling	50	Quarters of workmen employed on reservoir. Bank fifty feet high; garbage refuse thrown out on bank. City property.
" 20	11	East Branch, south bank, just below spillway	Privy	85	Uncemented earth vault.
" 20	11	East Branch, south bank, just below spillway	Dwelling	60	Slops thrown out.
" 20	12	East Branch, north bank, at Sodom Village	Privy	75	Cemented stone vault.
" 20	12	East Branch, north bank, at Sodom Village	Pig-pen	75	Unoccupied, but dirty.
" 20	13	East Branch, north bank, at Sodom Village	Manure heap	28	Very large.
" 20	13	East Branch, north bank, at Sodom Village	Barn	25	Eighteen horses stabled in barn.
" 20	14	East Branch, north bank, at Sodom Village	Privy	37	Uncemented earth vault.
" 20	14	East Branch, north bank, at Sodom Village	Dwelling	50	Kitchen drain-pipe discharges on steep bank thirty feet from water.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Aug. 20	15	East Branch, south bank, at Sodom Village	Dwelling	40	Slops thrown out on bank. Hotel and saloon.
" 20	15	East Branch, south bank, at Sodom Village	Privy	70	Loose stone vault.
" 20	15	East Branch, south bank, at Sodom Village	Barn	60	
" 20	16	East Branch, north bank, at Sodom Village	Garbage heap	*	Clothing washed on bank at this point.
" 20	17	East Branch, north bank, at Sodom Village	Two privies	85	Uncemented earth vault, full.
" 20	18	East Branch, north bank, at Sodom Village	Manure and garbage heap	*	
" 20	19	Small tributary from south, near New York and New England Railroad	Poultry-house	35	Unoccupied but dirty; brook dried up.
" 20	20	East Branch, south bank, near condensed milk factory	Manure heap	100	Large heap.
" 20	21	East Branch, south bank, above second bridge from dam	Factory	*	New York Condensed Milk Co. Washings from factory run into river; privies located directly over river; now used as urinals only.
" 20	22	East Branch, north bank, below second bridge from dam	Dwelling	*	Kitchen drain-pipe discharges into river.
" 20	23	Tributary from north, flows to the east of Brewster	Barnyard	*	Brook runs directly through yard; water of same filthy.
" 20	23	Tributary from north, flows to the east of Brewster	Poultry yard	*	Brook runs directly through yard; water of same filthy.
" 20	24	East Branch, north bank, southeast of Brewster	Pig-pen	35	
" 20	24	East Branch, north bank, southeast of Brewster	Privy	40	Uncemented earth vault.
" 20	24	East Branch, north bank, southeast of Brewster	Garbage heap	*	
" 20	25	East Branch, north bank, southeast of Brewster	"	*	
" 20	26	East Branch, south bank, southeast of Brewster	Poultry yard	*	
" 20	26	East Branch, south bank, southeast of Brewster	Privy	40	Loose stone vault.
" 20	27	Small tributary from south, enters river southeast of Brewster	Barn	*	Brook flows through barnyard.
" 20	28	Small tributary from north, enters river southeast of Brewster	Privy	*	Uncemented earth vault. Brook dry, except near river.
" 20	29	East Branch, north bank, south of Brewster	"	60	Uncemented earth vault.
" 20	29	East Branch, north bank, south of Brewster	Poultry-house	60	
" 20	30	East Branch, north bank, south of Brewster	Two poultry yards	250	On open drain running to river.
" 20	30	East Branch, north bank, south of Brewster	Pig-pen	250	" "
" 20	31	East Branch, north bank, south of Brewster	Privy	50	Cemented stone vault. On steep slope.
" 20	31	East Branch, north bank, south of Brewster	Poultry-house	50	On steep slope.
" 20	32	East Branch, north bank, south of Brewster	Two dwellings	*	Precipitous bank, fifty feet high; garbage and refuse thrown down bank.
" 20	32	East Branch, north bank, south of Brewster	Privy	*	Precipitous bank, fifty feet high. Cemented stone vault.
" 20	33	East Branch, north bank, south of Brewster	Garbage heap	*	Precipitous bank, fifty feet high.
" 20	33	East Branch, north bank, south of Brewster	Privy	10	Precipitous bank, fifty feet high measurement from edge of bank; loose stone vault.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Aug. 21	34	Tonetta brook, tributary from north, flows through west of Brewster	Horse shed	50	East bank.
" 21	34	Tonetta brook, tributary from north, flows through west of Brewster	Two privies	80	Loose stone vault. East bank.
" 21	35	Tonetta brook, tributary from north, flows through west of Brewster	Privy	80	" "
" 21	35	Tonetta brook, tributary from north, flows through west of Brewster	Barnyard	80	East bank.
" 21	36	Tonetta brook, tributary from north, flows through west of Brewster	Blacksmith shop	*	Built directly over brook.
" 21	37	Tonetta brook, tributary from north, flows through west of Brewster	Barn	10	East bank.
" 21	38	Tonetta brook, tributary from north, flows through west of Brewster	Privy	*	Uncemented earth vault. West bank
" 21	38	Tonetta brook, tributary from north, flows through west of Brewster	Dwelling	*	Built directly over brook.
" 21	39	Tonetta brook, tributary from north, flows through west of Brewster	Privy	*	Uncemented earth vault. West bank.
" 21	39	Tonetta brook, tributary from north, flows through west of Brewster	Dwelling	*	Slops thrown out. East bank.
" 21	40	Tonetta brook, tributary from north, flows through west of Brewster	Two privies	*	Cemented stone vaults; in Harlem Railroad Depot, directly over brook.
" 21	41	Tonetta brook, tributary from north, flows through west of Brewster	Business block	*	Ten houses, including Brewster House, east of Harlem Railroad depot; sewer-pipes from same discharge into brook.
" 21	42	Tonetta brook, tributary from north, flows through west of Brewster	Bank	*	Sewer-pipe from same discharges into brook; water-closets said to be unused.
" 21	43	Tonetta brook, tributary from north, flows through west of Brewster	Business block	*	Six houses, southeast of Harlem Railroad depot; sewer-pipes from same discharge into brook.
" 21	44	Tonetta brook, tributary from north, flows through west of Brewster	Garbage heap	*	Below culvert, southeast of Harlem Railroad depot; apparently the town dump.
" 21	45	Tonetta brook, tributary from north, flows through west of Brewster	Barn	75	Manure scattered about. East bank.
" 21	46	Tonetta brook, tributary from north, flows through west of Brewster	Poultry-house	20	East bank.
" 21	46	Tonetta brook, tributary from north, flows through west of Brewster	Privy	20	Uncemented earth vault. East bank.
" 21	47	Tonetta brook, tributary from north, flows through west of Brewster	Poultry-house	10	East bank.
" 21	47	Tonetta brook, tributary from north, flows through west of Brewster	Privy	10	Uncemented earth vault. East bank.
" 21	48	Tonetta brook, tributary from north, flows through west of Brewster	"	45	Loose stone vault. East bank.
" 21	49	Tonetta brook, tributary from north, flows through west of Brewster	Dwelling	30	Slops thrown out. East bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Aug. 21	49	Tonetta brook, tributary from north, flows through west of Brewster	Privy	*	Uncemented earth vault. West bank.
" 21	50	East Branch, south bank, southwest end of Brewster	Barn	200	Open drain runs through barnyard to river.
" 21	51	East Branch, south bank, at Thomasville	Dwelling	80	Bank forty feet high; slops and garbage thrown down bank.
" 21	52	East Branch, south bank, at Thomasville	Privy	60	Bank thirty feet high. Uncemented earth vault, filthy.
" 21	53	East Branch, south bank, at Thomasville	"	50	Bank twenty-five feet high. Uncemented earth vault.
" 21	54	East Branch, south bank, at Thomasville	"	*	Bank ten feet high. No vault; excrement oozing down bank; garbage scattered about.
" 21	55	East Branch, south bank, at Thomasville	"	60	Bank ten feet high. Uncemented earth vault.
" 21	56	East Branch, south bank, at Thomasville	Barn	*	Bank ten feet high; manure scattered about; old tin cans, etc., thrown into river.
" 21	56	East Branch, south bank, at Thomasville	Privy	100	Uncemented earth vault.
" 21	56	East Branch, south bank, at Thomasville	Pig-pen	35	
" 21	56	East Branch, south bank, at Thomasville	Poultry-house	25	
" 21	57	East Branch, north bank, at Thomasville	Privy	60	Uncemented earth vault. Garbage scattered on water's edge.
" 21	58	East Branch, south bank	"	*	Uncemented earth vault.
" 21	58	" "	Three garbage heaps	*	
" 21	59	" "	Privy	45	" "
" 21	60	" "	"	*	Uncemented earth vault; partly overhangs the water.
" 21	61	" "	"	20	Uncemented earth vault.
" 21	61	" "	Barn	*	
" 21	62	East Branch, south bank, about one-half mile below Brewster	Privy	100	Locked, could not examine.
" 21	62	East Branch, south bank, about one-half mile below Brewster	Poultry-house	100	"
" 21	63	East Branch, south bank, about three-fourths mile below Brewster	Privy	*	Uncemented earth vault.
" 21	63	East Branch, south bank, about three-fourths mile below Brewster	Two garbage heaps.	*	
" 21	64	East Branch, south bank, about three-fourths mile below Brewster	Poultry yards	20	
" 21	64	East Branch, south bank, about three-fourths mile below Brewster	Pig-pen	20	
" 21	64	East Branch, south bank, about three-fourths mile below Brewster	Barn	20	
" 21	64	East Branch, south bank, about three-fourths mile below Brewster	Pig-pen	30	
" 21	65	East Branch, south bank, about three-fourths mile below Brewster	Slaughter-house	10	Yard extends to water's edge; very filthy; ground soaked with blood and offal.
" 27	66	East Branch, south bank, about one-fourth mile above first dam	Dwelling	70	Slops thrown out; steep slope.
" 27	66	East Branch, south bank, about one-fourth mile above first dam	Barn	70	Steep slope.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water in Feet.	Remarks.
Aug. 27	66	East Branch, south bank, about one-fourth mile above [illegible] dam	Privy	30	Uncemented earth vault. Steep slope.
" 27	67	East Branch, north bank, at second dam	Machine shop	0	Sewage twenty-five [illegible]. Washings run into the river, private sewage five [illegible] from water, cemented stone vaults in hole planked out of solid rock [illegible] drain from same to river.
" 27	68	East Branch, south bank, at third dam	Brass foundry	0	Large [illegible] bank. Washings run into river; private sewage five [illegible] from water supply [illegible] box vaults, frequently cleaned.
" 27	68	East Branch, south bank, at third dam	Tunnel	75	At brass foundry; bed of sand two and one-half feet thick, frequently renewed.
" 27	68	East Branch, south bank, at third dam	Barn	0	At brass foundry; very loose floor of hard earth, stable paved with wood.
" 27	68	East Branch, south bank, at third dam	Manure heap	40	At brass foundry frequently removed.
" 27	69	East Branch, south bank, north of Harlem Railroad bridge	Barn	600	In open drain running to river.
" 27	70	East Branch, south bank, near fourth dam	Privy	65	Uncemented earth vault. Refuse scattered about.
" 27	71	East Branch, south bank, near fourth dam	"	30	Cemented stone vault.
" 27	72	East Branch, south bank, near fourth dam	Dwelling	40	Slops thrown into open drain running to river
" 27	73	East Branch, south bank, at Village of Croton Falls	"	20	Slops thrown out.
" 27	73	East Branch, south bank, at Village of Croton Falls	Privy	80	Uncemented earth vault.
" 27	73	East Branch, south bank, at Village of Croton Falls	Poultry yard	20	
" 27	74	East Branch, south bank, at Village of Croton Falls	Dwelling	0	Slops thrown out. Located between race and river.
" 27	74	East Branch, south bank, at Village of Croton Falls	Privy	20	Cemented stone vault. Located between race and river.
" 27	75	East Branch, south bank, at Village of Croton Falls	"	15	Cemented stone vault.
" 27	76	East Branch, north bank, at Village of Croton Falls	Poultry-house	35	Large number of fowls kept. Premises generally clean; ben manure gathered up.
" 27	76	East Branch, north bank, at Village of Croton Falls	Privy	20	Wooden box vault.
" 27	77	East Branch, north bank, at Village of Croton Falls	Horse shed	30	Much manure in shed.
" 27	77	East Branch, north bank, at Village of Croton Falls	Barn	30	
" 27	77	East Branch, north bank, at Village of Croton Falls	Manure heap	30	
" 27	78	East Branch, north bank, at Village of Croton Falls	Privy	60	Uncemented earth vault
" 27	78	East Branch, north bank, at Village of Croton Falls	Poultry yard	80	Number of fowls kept.
" 28	79	East Branch, south bank, at Village of Croton Falls	Barn	85	
" 28	79	East Branch, south bank, at Village of Croton Falls	Manure heap	85	
" 28	79	East Branch, south bank, at Village of Croton Falls	Privy	95	Cemented stone vault; slops and garbage thrown alongside
" 28	80	East Branch, north bank, at Village of Croton Falls	"	0	Cemented stone vault, open at back; ashes thrown in occasionally.
" 28	81	East Branch, north bank, at Village of Croton Falls	Poultry-house	0	
" 28	81	East Branch, north bank, at Village of Croton Falls	Garbage heap	0	

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Aug. 28	81	East Branch, north bank, at Village of Croton Falls.....	Privy	*	Cemented stone vault.
" 28	82	East Branch, south bank, at Village of Croton Falls.....	Blacksmith shop...	10	From edge of precipitous bank, forty feet high; refuse thrown down bank.
" 28	82	East Branch, south bank, at Village of Croton Falls.....	Privy	*	No vault; precipitous bank, forty feet high.
" 28	83	East Branch, south bank, at Village of Croton Falls.....	House-drain	*	Empties over edge of precipitous bank, forty feet high.
" 28	83	East Branch, south bank, at Village of Croton Falls.....	Garbage heap.....	*	Scattered down precipitous bank, forty feet high. Very large; apparently a town dump.
" 28	84	East Branch, south bank, at Village of Croton Falls.....	Barn	*	Precipitous bank, forty feet high; manure scattered around.
" 28	85	East Branch, south bank, at Village of Croton Falls.....	Two privies.....	40	From edge of precipitous bank, forty feet high. Uncemented earth vaults.
" 28	86	East Branch, south bank, at Village of Croton Falls.....	Poultry yard.....	*	On edge of precipitous bank, forty feet high.
" 28	87	East Branch, south bank, at Village of Croton Falls.....	Old shed.....	*	On edge of precipitous bank, forty feet high; washing done in same and slops thrown down bank.
" 28	88	East Branch, south bank, at Village of Croton Falls.....	Two privies.....	*	No vaults. Precipitous bank, forty feet high; premises generally filthy.
" 28	88	East Branch, south bank, at Village of Croton Falls.....	House-drain.....	*	Empties over edge of precipitous bank, forty feet high.
" 28	89	East Branch, south bank, at Village of Croton Falls.....	Barn	*	On edge of precipitous bank, forty feet high.
" 28	89	East Branch, south bank, at Village of Croton Falls.....	Manure heap.....	*	On edge of precipitous bank, forty feet high; scattered halfway down bank.
" 28	90	East Branch, south bank, at Village of Croton Falls.....	Horse shed.....	25	From edge of precipitous bank, forty feet high; considerable manure in same.
" 28	91	East Branch, south bank, at Village of Croton Falls.....	Garbage heap.....	*	On edge of precipitous bank, forty feet high. Very large; apparently a town dump.
" 28	92	East Branch, south bank, at Village of Croton Falls.....	Barn	*	On edge of precipitous bank, forty feet high. Manure scattered down bank.
" 28	93	East Branch, south bank, at Village of Croton Falls.....	Manure pit.....	*	On side of precipitous bank, forty feet high; very filthy.

Note.—Nos. 82 to 93, inclusive, occupy a space of about 200 yards along the river bank. The bank for this distance is littered with filth of every description, in several places at least three feet thick.

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries.....		..	..	..	..	..	..	..	..	
Privies	No vaults	4	1	..	..	..	..	..	5	62
	Uncemented earth vaults.....	10	3	9	12	..	1	..	35	
	Loose stone vaults.....	2	1	2	4	..	..	..	9	
	Cemented stone vaults.....	4	2	2	3	..	..	..	11	
	Wooden box vaults.....	1	1	..	..	..	..	..	2	

Summary.	On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.
Cesspools { Loose stone vaults	..	..	..	..	..	..	..	.. } ..
Cesspools { Cemented stone vaults	..	..	..	..	..	..	..	.. }
Slaughter-houses	..	1	..	..	..	..	..	1
Pig-pens	..	1	3	1	..	1	1	7
Poultry houses and yards	5	6	3	2	..	2	..	18
Manure heaps	3	..	3	2	..	..	..	8
Garbage heaps	14	..	..	..	..	..	..	14
Barns and barnyards	10	3	2	6	..	2	2	25
Horse and cattle sheds	..	1	2	..	..	..	..	3
Dwellings	26	1	4	4	..	..	1	36
Factories	4	1	..	..	..	..	..	5
Total	83	22	30	34	..	6	4	179

Reservoir "G," or Middle Branch Reservoir, and the Middle Branch of the Croton River Below the Reservoir, with their Tributaries.

Reservoir "G"—This reservoir is located about midway between the eastern and western limits of the water-shed, one mile west of Brewster, and has a drainage area of about twenty-one square miles, and a capacity of nearly five billion gallons. It has been in use twelve years. A small portion of the northern end of the reservoir is separated from the main body by the dump of the Tilly Foster iron mine, the ledge in which the latter is located, and the embankment over which the track of the New York City and Northern Railroad passes. The two bodies of water join under a bridge in the railroad embankment. The main feeder of the reservoir is the Middle Branch of the Croton river, which enters it at its northern end. A brook of some size enters it at its northwest corner, and another small brook joins it on the east of the Tilly Foster dump. It has no other tributaries of importance. The supply of water from the reservoir had been shut off on August 22, 1891. Up to that date the reservoir had been furnishing thirty million gallons daily to the City's water supply. No water was being drawn from the reservoir at time of inspection (August 28, 1891). The small amount of water remaining in the northern basin was of a bright green color, and appeared to be full of vegetable debris. It was covered in places with a green scum, and the same was true of the northern portion of the main reservoir. Between high-water mark and the present water-level, a considerable growth of weeds had sprung up around the shores of the northern basin. The rip-rap at the dam was, however, clean and free from vegetable growth.

A fountain is located just below the dam, by which the water is aerated, in its passage into the Middle Branch. We were informed by the gate-house keeper, and by other residents in the vicinity, that a smell of sulphureted hydrogen was perceptible at the fountain, when water was flowing through the same.

On the ledge in which the Tilly Foster mine is located, there are ten buildings; and to the north, facing the small northern basin, are seventeen houses occupied by the mine laborers. While all of these are at a considerable distance from the water, the configuration of the ground is such that their drainage must flow towards the main reservoir or the small northern basin. North of the dump are two ore-washing beds, from each of which small streams flow into the main reservoir and small basin respectively.

Middle Branch of the Croton River—From the fountain at the dam, this stream flows in a general southwesterly direction to its junction with the West Branch, about two miles below the dam. From this point the combined streams flow in a general southerly direction, a distance of about one and one-half miles, to the point where they join the East Branch, just below Croton Falls. The only important tributary to the Middle Branch, below the reservoir, is "Brimstone Hollow" brook, which rises above the Town of Carmel, drains a portion of the same, and flows southerly between the reservoir and Lakes Gleneida and Gilead, joining the Middle Branch about three-quarters of a mile below the dam.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Aug. 28	94	Reservoir "G," east shore, one mile from north end	Barn	300	Blind drain runs from barn and poultry-house alongside privy (ten feet from same) to reservoir. Water of drain near reservoir shows sewage contamination on tests.
" 28	94	Reservoir "G," east shore, one mile from north end	Poultry-house	300	
" 28	94	Reservoir "G," east shore, one mile from north end	Privy	200	Wooden box vault.
" 28	95	Reservoir "G," east shore, near Tilly Foster dump	Dwelling	60	Slops thrown out.
" 28	95	Reservoir "G," east shore, near Tilly Foster dump	Privy	80	Loose stone vault.
" 28	95	Reservoir "G," east shore, near Tilly Foster dump	Poultry-house	80	
" 28	96	Small tributary, drains swampy ground into small northern basin of reservoir	Dwelling	30	Slops thrown out. Measurement made from edge of swampy ground.
" 28	96	Small tributary, drains swampy ground into small northern basin of reservoir	Privy	10	Loose stone vault. Measurement made from edge of swampy ground.
" 28	97	Reservoir "G," south side, small northern basin	Dwelling	25	Slops thrown out; has no privy.
" 28	98	Tributary from west, enters reservoir three-fourths mile from north end	"	*	House-drain discharges into brook.
" 28	98	Tributary from west, enters reservoir three-fourths mile from north end.	Privy	10	Uncemented earth vault.
" 28	98	Tributary from west, enters reservoir three-fourths mile from north end.	Barn	20	
" 28	98	Tributary from west, enters reservoir three-fourths mile from north end.	Manure heap.	20	
" 28	99	Reservoir "G," east side, one-half mile above dam	Barn	50	Fifteen cows. Small brook runs alongside barn into reservoir.
" 28	100	Small tributary from east, enters reservoir three-fourths mile above dam.	Privy	35	Loose stone vault.
" 28	100	Small tributary from east, enters reservoir three-fourths mile above dam.	Pig-pen	30	Filthy.
" 28	100	Small tributary from east, enters reservoir three-fourths mile above dam.	Barnyard	100	Manure in same.
" 28	101	Middle Branch, small tributary from west, enters river just below dam.	Cow yard	*	Brook fed by spring in cow yard.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Aug. 28	102	Middle Branch, east bank, gate-house keeper's residence.....	Poultry-house	40	On stone embankment, twenty feet high. Large number of fowls; manure gathered up.
" 28	102	Middle Branch, east bank, gate-house keeper's residence	Dwelling	40	On stone embankment, twenty feet high. Slops thrown out; premises generally clean.
" 28	103	Middle Branch, east bank, near dam...	Privy.....	120	No vault; contents drop at foot of stone embankment.
" 28	103	" " ...	House-drain .	120	Empties over stone embankment.
" 28	104	Middle Branch, east bank, about three-fourths mile below dam.....	Barn	*	Ten horses.
" 28	104	Middle Branch, east bank, about three-fourths mile below dam.....	Manure heap.	20	Very large, wet and filthy.
" 28	104	Middle Branch, east bank, about three-fourths mile below dam.....	Pig-pen.....	40	Filthy.
" 28	104	Middle Branch, east bank, about three-fourths mile below dam	Barn.....	40	Ten cows.
" 28	104	Middle Branch, east bank, about three-fourths mile below dam.....	Poultry yard.	40	
" 28	105	Middle Branch, east bank, about three-fourths mile below dam.....	Cesspool....	*	Receives drainage (including water-closets) of large residence.
Sept. 2	106	"Brimstone Hollow" brook, tributary from west, enters river three-fourths mile below dam, about two-thirds mile north of Carmel..	Cemetery....	220	One hundred and twenty feet from marshy land drained by brook; west bank. "Raymond Hill Cemetery."
" 2	107	The same, about one-half mile north of Carmel.....	Barn	30	West bank.
" 2	107	The same, about one-half mile north of Carmel.....	Manure heap.	30	"
" 2	107	The same, about one-half mile north of Carmel.....	Privy.....	30	West bank, loose stone vault.
" 2	108	"Brimstone Hollow" brook, at Carmel..	Poultry yard.	60	West bank. In cleanly condition; new.
" 2	108	" " ..	Barn	70	" "
" 2	109	" " ..	Privy.....	15	No vault. West bank.
" 2	109	" " ..	Barnyard....	*	Brook runs under yard.
" 2	109	" " ..	Poultry yard.	*	"
" 2	109	" " ..	Dwelling	10	Slops and garbage thrown into brook, which is half full of same.
" 2	110	" " ..	Privy.....	60	Loose stone vault. West bank.
" 2	111	" " ..	"	10	" "
" 2	111	" " ..	Dwelling	40	Slops thrown out. West bank.
" 2	112	" " ..	"	10	" "
" 2	112	" " ..	Poultry-house	*	West bank.
" 2	112	" " ..	Privy.....	5	Loose stone vault. West bank.
" 2	113	" " ..	Poultry yard	20	East bank.
" 2	113	" " ..	Privy.....	25	Vault open at back. East bank.
" 2	114	"Brimstone Hollow" brook, on Fair Grounds, at Carmel.....	Barn.....	*	Manure in same; not in use. West bank.
" 2	114	"Brimstone Hollow" brook, on Fair Grounds, at Carmel.....	"	90	Manure in same; not in use. West bank.
" 2	114	"Brimstone Hollow" brook, on Fair Grounds, at Carmel.....	"	75	Manure in same; not in use. West bank.
" 9	115	"Brimstone Hollow" brook, opposite northwest end of Reservoir "G"..	"	150	Manure scattered about. West bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 9	116	"Brimstone Hollow" brook, opposite middle of Reservoir "G".	Privy.....	120	Uncemented earth vault. East bank.
" 9	117	"Brimstone Hollow" brook, opposite middle of Reservoir "G".....	Dwelling	75	Slops thrown out. East bank.
" 9	117	'Brimstone Hollow" brook, opposite middle of Reservoir "G".....	Pig-pen	*	East bank.
" 9	117	"Brimstone Hollow" brook, opposite middle of Reservoir "G".....	Privy.....	125	Uncemented earth vault. East bank.
" 9	118	"Brimstone Hollow" brook, opposite middle of Reservoir "G".....	Barn	10	West bank.
" 9	119	"Brimstone Hollow" brook, opposite south end of Reservoir "G".....	"	10	Now unused. Manure scattered about. West bank.
Aug. 28	120	"Brimstone Hollow" brook, just above junction with Middle Branch	"	60	West bank, on point of land between brook and river.
" 28	120	"Brimstone Hollow" brook, just above junction with Middle Branch	Manure heap	60	West bank, on point of land between brook and river.
" 28	121	Small tributary from east, enters river one and one-fourth miles below dam	Barnyard....	*	
" 28	121	Small tributary from east, enters river one and one-fourth miles below dam	Privy	*	No vault; built directly over brook.

Combined Middle and West Branches, at Croton Falls.

Aug. 29	122	Artificial brook from East Branch, flowing southwest into combined branches.....	Manure and garbage heap	40	East bank.
" 29	122	Artificial brook from East Branch, flowing southwest into combined branches..	Privy.....	40	East bank. Wooden box vault.
" 29	122	Artificial brook from East Branch, flowing southwest into combined branches.....	Barn	15	East bank.
" 29	123	Artificial brook from East Branch, flowing southwest into combined branches....	"	40	East bank. Cemented stone foundation; new.
" 29	123	Artificial brook from East Branch, flowing southwest into combined branches	Privy.....	40	East bank. Cemented stone vault; new.
" 29	123	Artificial brook from East Branch, flowing southwest into combined branches.....	Manure heap	40	East bank. Large heap.
" 29	123	Artificial brook from East Branch, flowing southwest into combined branches	Garbage heap	10	East bank.
" 29	124	Artificial brook from East Branch, flowing southwest into combined branches.	Two privies..	*	East bank. Cemented stone vaults, one cracked, the other broken; school-house privies.

Summary.	On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries	..	..	..	..	..	1	..	1	
Privies — No vaults	1	2	..	..	1	..	..	4	19
Privies — Uncemented earth vaults	..	1	..	..	2	..	..	3	
Privies — Loose stone vaults	..	3	2	2	..	..	..	7	
Privies — Cemented stone vaults	2	..	1	..	..	..	..	3	
Privies — Wooden box vaults	..	..	1	..	..	1	..	2	
Cesspools — Loose stone vaults	..	..	..	..	..	..	..	..	1
Cesspools — Cemented stone vaults	1	..	..	..	..	..	..	1	
Slaughter-houses	..	..	..	..	..	..	..	..	
Pig-pens	1	..	2	..	..	..	..	3	
Poultry houses and yards	2	1	2	2	..	..	1	8	
Manure heaps	..	2	3	1	..	..	..	6	
Garbage heaps	..	1	1	..	..	..	..	2	
Barns and barnyards	5	4	4	5	1	..	1	20	
Horse and cattle sheds	..	..	..	..	..	..	..	..	
Dwellings	1	3	3	2	1	..	..	10	
Factories	..	..	..	..	..	..	..	..	
Total	13	17	19	12	5	2	2	70	

Reservoir "E" or Boyd's Corners Reservoir, the West Branch of the Croton River below the Reservoir, and Lakes Gleneida and Gilead, with their Tributaries.

Reservoir "E."—This reservoir is located near the northwestern extremity of the water-shed, about four and one-half miles northwest of Reservoir "G," and has a drainage area of about twenty square miles, and a capacity of about three billion three hundred million gallons. It has been in use nineteen years. The main feeders of the reservoir are two in number, and enter it at the northwestern and northeastern extremities, respectively. They may be considered as the two branches of the West Branch of the Croton river, which latter, therefore, takes its rise in the reservoir itself. There are no other tributaries of importance.

The village of Kent Cliffs is located on the west side of the reservoir, about midway between its northern and southern extremities. Its situation is such that the drainage of the village is towards the reservoir, or towards a small brook which flows through the town into the reservoir.

At the time of inspection (September 3, 1891), twenty million gallons daily were being drawn from the reservoir for the city's water supply. The banks of the reservoir, between high-water mark and present water-level, were cleaner and more free from growth of weeds, etc., than those of Reservoirs "G" or "I." The water is aerated by passing through a fountain at the base of the dam. At this point a faint marshy odor was perceptible, similar to that of Croton water as delivered in New York City. No smell of sulphuretted hydrogen was noted.

West Branch of the Croton River.—Starting at the reservoir, this stream flows for a distance of about eight miles in a general southeasterly direction to its junction with the Middle Branch above Croton Falls. The small village of Coles' Mills is located on the river about one mile below the reservoir. Its main tributaries are: From the west, China Pond brook, joining it about one-half mile below the reservoir; Barrett's Pond brook, joining it at Coles' Mills, and Long Pond brook, joining it about three and one-fourth miles below the reservoir. From the east, the main tributaries are: The stream formed by the junction of Pine Pond and Horse Pound brooks, and the outlet of Lake Gleneida, which stream enters the river about two and one-third miles below the reservoir, and the outlet of Lake Gilead, which enters it about one and one-third miles above its junction with the Middle Branch.

The large dam for new Reservoir "M" is being built on the river, under the supervision of the Aqueduct Commission, at a point about three-eighths of a mile below the junction of Long Pond brook with the river.

Lake Gleneida.—This lake is located about two and three-fourths miles southeast from Reservoir "E," on a line between this and Reservoir "G." It is entirely fed by springs, and is about seven-eighths of a mile long and three-eighths of a mile wide at its widest part. Carmel, the county seat of Putnam County, lies along its eastern bank. The general drainage of the larger portion of the town is towards the lake. The outlet of the lake is at its northwestern extremity, and empties it into Horse Pound brook, about seven-eighths of a mile from the junction of the latter with the West Branch.

At time of inspection (September 2, 1891), the lake was not in use as a source of water supply, the only water passing through the outlet being the small natural overflow.

Lake Gilead.—This lake is located about one mile south of Lake Gleneida, and is almost entirely fed by springs. It is about five-sixths of a mile long and one-third of a mile wide at its widest part. The outlet is located at its southern extremity, emptying it into the West Branch about one-third of a mile from the lake, and at the time of inspection (September 4, 1891), carried apparently only the natural overflow of the lake, which amounted to a fair sized brook. This lake is practically free from sewage pollution, only one possible source of contamination being noted. (See enumeration.)

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 3	125	Small tributary from west, enters reservoir south of Kent Cliffs....	Horse shed....	5	Manure scattered about. South bank.
" 3	125	Small tributary from west, enters reservoir south of Kent Cliffs....	Barn	15	North bank.
" 3	125	Small tributary from west, enters reservoir south of Kent Cliffs....	Two manure heaps.....	15	"
" 3	125	Small tributary from west, enters reservoir south of Kent Cliffs....	Privy	40	Uncemented earth vault. North bank; on dry gully, one hundred feet from reservoir.
" 3	125	Small tributary from west, enters reservoir south of Kent Cliffs....	Dwelling	25	Slops thrown out. North bank; on dry gully, one hundred feet from reservoir.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 3	126	Reservoir "E," west shore, at Kent Cliffs	Two privies	500	Uncemented earth vaults; school-house privies. On edge of precipitous slope, one hundred and fifty feet from dry gully leading to reservoir (see No. 125).
" 3	127	Reservoir "E," west shore, at Kent Cliffs	Barn	100	Manure in same; unoccupied.
" 3	128	Reservoir "E," west shore, at Kent Cliffs	"	400	Thirty feet from open drain, running to small brook, thence into reservoir.
" 3	128	Reservoir "E," west shore, at Kent Cliffs	Manure heap	400	Thirty feet from open drain, running to small brook, thence into reservoir.
" 3	129	Small tributary from west, enters reservoir at Kent Cliffs	Privy	35	Loose stone vault; north bank. Brook dry (see No. 128).
" 3	129	Small tributary from west, enters reservoir at Kent Cliffs	Dwelling	35	Slops thrown into brook; south bank. Brook dry (see No. 128).
" 3	130	Small tributary from west, enters reservoir at Kent Cliffs	"	35	Slops thrown out; north bank. Brook dry. Seventy-five feet from reservoir.
" 3	131	Reservoir "E," west shore, about one-third mile north of Kent Cliffs	"	70	Slops thrown out. Steep slope.
" 3	131	Reservoir "E," west shore, about one-third mile north of Kent Cliffs	Privy	80	Loose stone vault. Steep slope.
" 3	132	Reservoir "E," west shore, about one-half mile north of Kent Cliffs	"	120	Uncemented earth vault. On gully draining into reservoir; steep slope.
" 3	132	Reservoir "E," west shore, about one-half mile north of Kent Cliffs	Dwelling	80	Slops thrown out. Steep slope.
" 3	132	Reservoir "E," west shore, about one-half mile north of Kent Cliffs	Barn	40	Steep slope.
" 3	133	Reservoir "E," west shore, near northwest end	Privy	120	Uncemented earth vault.
" 3	133	Reservoir "E," west shore, near northwest end	Barn	120	
" 3	133	Reservoir "E," west shore, near northwest end	Manure heap	120	
" 3	133	Reservoir "E," west shore, near northwest end	Dwelling	40	Slops thrown out.
" 3	134	West Branch Croton river. Small tributary from east, enters river about three-eighths mile below reservoir	"	70	Slops thrown out; south bank. Has no privy.
" 3	135	China Pond brook, tributary from west. Enters river about one-half mile below reservoir	"	25	Slops thrown into open drain running to brook. South bank.
" 3	135	China Pond brook, tributary from west. Enters river about one-half mile below reservoir	Privy	*	No vault; built directly over brook.
" 3	135	China Pond brook, tributary from west. Enters river about one-half mile below reservoir	Pig-pen	30	North bank.
" 3	136	Barrett's Pond brook, tributary from west. Enters river at Cole's Mills	Dwelling	80	Slops thrown out. South bank; steep slope.
" 3	136	Barrett's Pond brook, tributary from west. Enters river at Cole's Mills	Privy	15	No vault. South bank.
" 3	136	Barrett's Pond brook, tributary from west. Enters river at Cole's Mills	Pig-pen	5	Filthy. South bank.
" 3	137	Barrett's Pond brook, tributary from west. Enters river at Cole's Mills	Poultry-house	15	North bank.
" 3	137	Barrett's Pond brook, tributary from west. Enters river at Cole's Mills	Dwelling	20	Slops thrown out. South bank. Premises generally dirty.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 3	137	Barrett's Pond brook, tributary from west. Enters river at Cole's Mills	Privy.....	*	No vault. South bank.
" 3	138	Barrett's Pond brook, tributary from west. Enters river at Cole's Mills	Barn	15	Manure in same; unoccupied. South bank.
" 3	139	West Branch, west bank, at Cole's Mills	Privy.....	10	Loose stone vault.
" 3	139	West Branch, west bank, at Cole's Mills	Dwelling	*	Slops thrown into river; built partly over same.
" 3	140	West Branch, east bank, at Cole's Mills	Privy.....	60	Loose stone vault. Steep slope.
" 3	140	West Branch, east bank, at Cole's Mills	Dwelling	60	Slops thrown out. Steep slope.
" 3	141	West Branch, west bank, at Cole's Mills	Cattle shed....	10	
" 3	141	West Branch, west bank, at Cole's Mills	Barnyard	*	Littered with manure.
" 2	142	Horse Pound brook, tributary from east, enters river two and one-third miles below reservoir	"	20	West bank, about two miles from junction of brook with West Branch.
" 2	143	East Branch of Horse Pound brook, one and one-half miles from junction with brook	Two privies....	150	Loose stone vaults. East bank; steep slope.
" 2	144	East Branch of Horse Pound brook, one and one-half miles from junction with brook	Privy.....	150	Uncemented earth vault. West bank.
" 2	144	East Branch of Horse Pound brook, one and one-half miles from junction with brook	Poultry-house..	150	West bank.
" 2	145	Lake Gleneida, east side, Town of Carmel	Privy.....	45	Uncemented earth vault.
" 2	145	Lake Gleneida, east side, Town of Carmel	Pig-pen.....	45	Filthy; open drain from same runs to lake.
" 2	145	Lake Gleneida, east side, Town of Carmel	Dwelling	10	Slops thrown out.
" 2	146	Lake Gleneida, east side, Town of Carmel	"	15	Slops thrown out on shore; premises filthy.
" 2	147	Lake Gleneida, east side, Town of Carmel	"	*	Slops thrown out.
" 2	147	Lake Gleneida, east side, Town of Carmel	Privy.....	*	No vault; built partly over water, and filthy.
" 2	148	Lake Gleneida, east side, Town of Carmel	Cattle shed....	*	Filthy.
" 2	148	Lake Gleneida, east side, Town of Carmel	Manure heap..	30	
" 2	149	Lake Gleneida, east side, Town of Carmel	Privy	15	Loose stone vault.
" 2	149	Lake Gleneida, east side, Town of Carmel	Dwelling	5	Slops thrown out.
" 2	150	Lake Gleneida, east side, Town of Carmel	Manure pit	10	
" 2	150	Lake Gleneida, east side, Town of Carmel	Poultry yard...	10	Filthy.
" 2	150	Lake Gleneida, east side, Town of Carmel	Pig-pen.....	*	
" 2	151	Lake Gleneida, east side, Town of Carmel	"	*	Filthy.
" 2	151	Lake Gleneida, east side, Town of Carmel	Dwelling	*	Slops thrown out.
" 2	151	Lake Gleneida, east side, Town of Carmel	Privy	5	Loose stone vault.
" 2	151	Lake Gleneida, east side, Town of Carmel	Dwelling	10	Slops thrown out.
" 2	152	Lake Gleneida, east side, Town of Carmel	Privy.....	*	Loose stone vault.
" 2	153	Lake Gleneida, east side, Town of Carmel	Factory.....	*	New York Milk and Cream Company. Washings from factory discharge into lake.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 2	154	Lake Gleneida, east side, Town of Carmel	Hotel	*	Slops thrown out on shore and washing done in lake.
" 2	154	Lake Gleneida, east side, Town of Carmel	Privy	10	Uncemented earth vault.
" 2	155	Lake Gleneida, east side, Town of Carmel	Dwelling	20	Slops and garbage thrown out in large amount.
" 2	155	Lake Gleneida, east side, Town of Carmel	Privy	*	Tight wooden box vault; full of liquid filth.
" 2	156	Lake Gleneida, east side, Town of Carmel	Blacksmith shop	*	
" 2	157	Lake Gleneida, east side, Town of Carmel	Two privies	20	Cemented stone vaults; school-house privies.
" 2	158	Lake Gleneida, east side, Town of Carmel	Privy	50	Cemented stone vault. Slops and garbage thrown alongside same.
" 2	158	Lake Gleneida, east side, Town of Carmel	Shed	*	Washing done in same.
" 2	159	Lake Gleneida, east side, Town of Carmel	Barn	*	
" 2	159	Lake Gleneida, east side, Town of Carmel	Privy	50	Cemented stone vault.
" 2	160	Lake Gleneida, east side, Town of Carmel	Two privies	50	"
" 2	160	Lake Gleneida, east side, Town of Carmel	Barn	50	
" 2	160	Lake Gleneida, east side, Town of Carmel	Manure heap	60	Large heap; in shed.
" 2	161	Lake Gleneida, east side, Town of Carmel	Privy	50	Uncemented earth vault.
" 2	162	Lake Gleneida, east side, Town of Carmel	"	50	Cemented brick vault.
" 2	163	Lake Gleneida, east side, Town of Carmel	Poultry yard	*	
" 2	163	Lake Gleneida, east side, Town of Carmel	Privy	50	Loose stone vault. Large pool of slops alongside of same.
" 2	164	Lake Gleneida, east side, Town of Carmel	"	30	Loose stone vault.
" 2	164	Lake Gleneida, east side, Town of Carmel	Poultry yard	40	
" 2	164	Lake Gleneida, east side, Town of Carmel	Dwelling	60	Slops thrown out.
" 2	165	Lake Gleneida, east side, Town of Carmel	Poultry yard	*	
" 2	165	Lake Gleneida, east side, Town of Carmel	Privy	40	Loose stone vault.
" 2	166	Lake Gleneida, east side, Town of Carmel	Barn	*	
" 2	166	Lake Gleneida, east side, Town of Carmel	Privy	60	Uncemented earth vault.
" 2	166	Lake Gleneida, east side, Town of Carmel	Manure heap	10	Large heap.
" 2	167	Lake Gleneida, east side, Town of Carmel	Barn	*	
" 2	167	Lake Gleneida, east side, Town of Carmel	Privy	70	Uncemented earth vault.
" 2	167	Lake Gleneida, east side, Town of Carmel	Garbage heap	70	
" 2	167	Lake Gleneida, east side, Town of Carmel	Dwelling	85	Slops thrown out.
" 2	168	Lake Gleneida, east side, Town of Carmel	Garbage heap	40	Slops thrown on same.
" 2	168	Lake Gleneida, east side, Town of Carmel	Privy	65	Leaky wooden box vault.
" 2	169	Lake Gleneida, east side, Town of Carmel	Garbage heap	*	
" 2	170	Lake Gleneida, east side, Town of Carmel	Poultry yard	*	Garbage thrown in same.
" 2	171	Lake Gleneida, east side, Town of Carmel	"	*	Apparently an old pig-pen; filthy.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks
Sept. 2	171	Lake Gleneida, east side, Town of Carmel	Two privies....	20	Uncemented earth vault.
" 2	171	Lake Gleneida, east side, Town of Carmel	Three privies..	70	Cemented stone vaults; house-drain discharges into these.
" 2	172	Lake Gleneida, east side, Town of Carmel, at Gleneida Hotel	Hotel	*	Drain-pipe from kitchen and wash-basins discharges into lake.
" 2	172	Lake Gleneida, east side, Town of Carmel	Garbage heap..	25	
" 2	172	Lake Gleneida, east side, Town of Carmel	Poultry-house..	25	
" 2	172	Lake Gleneida, east side, Town of Carmel	Large privy....	*	Cemented stone vault; drain-pipe from this discharges into lake.
" 2	172	Lake Gleneida, east side, Town of Carmel	Barn	*	Twenty horses. Refuse and garbage thrown into lake back of same.
" 2	173	Lake Gleneida, east side, Town of Carmel	Two privies....	80	Cemented stone vaults, full of liquid filth.
" 2	173	Lake Gleneida, east side, Town of Carmel	Refuse heap...	5	
" 2	174	Lake Gleneida, north end, Town of Carmel	Dwelling	100	Open drain runs alongside house to lake.
" 2	175	Lake Gleneida outlet, about one-sixth mile from lake	Barn	60	South bank.
" 2	175	Lake Gleneida outlet, about one-sixth mile from lake	Privy.....	60	Cemented stone vault. South bank.
" 2	175	Lake Gleneida outlet, about one-sixth mile from lake	Refuse heap...	*	Considerable refuse in brook itself.
" 2	175	Lake Gleneida outlet, about one-sixth mile from lake	Poultry-house..	20	
" 2	175	Lake Gleneida outlet, about one-sixth mile from lake	Barn	40	
" 2	175	Lake Gleneida outlet, about one-sixth mile from lake	Manure heap ..	30	Large heap.
" 3	176	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir.	Privy.....	10	Loose stone vault. South bank.
" 3	176	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir.	Dwelling	40	Slops thrown out. South bank.
" 3	177	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir.	"	100	Slops thrown out. North bank.
" 3	177	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir.	Poultry-house..	10	North bank.
" 3	178	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir.	Barn	*	South bank.
" 3	178	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir.	Manure heap.	*	"
" 3	178	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir.	Privy.....	25	Loose stone vault. South bank.
" 3	178	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir.	Dwelling	40	Slops thrown out. South bank.
" 3	179	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir	Pig-pen	*	Filthy. Precipitous bank fifteen feet high. South bank.
" 3	179	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir	Privy	40	Loose stone vault; contents oozing out underneath. Steep slope. South bank.
" 3	179	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir	Dwelling	30	Steep bank, twenty-five feet high; house-drain runs down bank. South bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 3	180	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir	Dwelling	*	Quarters for twenty laborers employed on small dam for new Reservoir "D"; apparently old mill. Built directly over brook. Slops and garbage thrown into brook.
" 3	180	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir	Privy	25	Uncemented earth vault. Back of laborers' quarters. Steep slope. North bank.
" 3	180	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir	Pig-pen.....	30	Very filthy; open drain to brook. Back of laborers' quarters. Steep slope. North bank.
" 3	180	Long Pond brook, tributary from west, enters river three and one-fourth miles below the reservoir	Privy	12	Uncemented earth vault. In front of laborers' quarters. North bank.
" 3	182	Small tributary to Long pond, from the east	Shed.....	*	Swill for pigs kept in same. Built directly over brook.
" 3	181	Small tributary to Long pond, from the east	Pig-pen.....	30	North bank.
" 3	180	Long Pond brook.....	Two privies ...	100	Loose stone vault; school-house privies. North bank.
" 3	183	"	Barn	125	South bank.
" 3	184	Small tributary to Long Pond brook, from the north.....	"	*	Brook dried up.
" 4	185	West Branch, west bank, above large dam for new Reservoir "D"	Dwelling	125	Quarters for sixty laborers employed on large dam. Garbage and slops thrown into river and washing done in river.
" 4	185	West Branch, west bank, above large dam for new Reservoir "D"	"	30	Slops thrown into river.
" 4	186	West Branch, west bank, below large dam for new Reservoir "D"	"	80	Quarters for twenty laborers (see No. 185). Steep slope. Refuse thrown down bank.
" 4	187	Lake Gilead, west shore.....	Privy	700	Loose stone vault. On old water-course, seventy-five feet above the lake.
" 4	188	Lake Gilead outlet; enters West Branch from north, about one-third mile from the lake. Small spring brook tributary to outlet..	"	80	Loose stone vault.
" 4	188	Lake Gilead outlet.....	Dwelling.....	10	Slops thrown out. East bank.
" 4	189	"	Barn	60	East bank.
" 4	189	"	Manure heap..	60	"
" 4	189	"	Pig-pen	5	Filthy. Open drain to outlet. East bank.
" 4	189	"	Privy.....	40	Loose stone vault.
" 4	190	Junction of flume and small tributary to West Branch, from the west, three-fourths mile above junction of West and Middle Branches.....	Dwelling.....	100	Slops thrown out. Washing done in flume.
" 3	191	Junction of flume and small tributary to West Branch, from the west, three-fourths mile above junction of West and Middle Branches.....	Wash-house ...	*	On tributary.
" 3	191	Junction of flume and small tributary to West Branch, from the west, three-fourths mile above junction of West and Middle Branches.....	Privy.....	15	On tributary. Loose stone vault.

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries		..	..	..	..	..	..	..	..	
Privies	No vault	4	1	..	..	..	..	..	5	56
	Uncemented earth vault	..	5	3	2	3	..	2	15	
	Loose stone vault	1	6	6	5	2	..	1	21	
	Cemented stone vault	..	2	5	6	..	..	..	13	
	Wooden box vault	1	..	..	1	..	..	..	2	
Cesspools	Loose stone vault	..	..	..	..	..	..	..	..	..
	Cemented stone vault	..	..	..	..	..	..	..	..	
Slaughter-houses		..	..	..	..	..	..	..	..	
Pig-pens		3	2	4	..	..	..	..	9	
Poultry houses and yards		4	5	1	..	1	..	..	11	
Manure heaps		1	4	2	2	1	..	1	11	
Garbage heaps		3	2	1	1	..	..	..	7	
Barns and barnyards		7	3	3	3	2	..	1	19	
Horse and cattle sheds		1	2	..	..	..	..	..	3	
Dwellings		8	9	7	11	1	..	..	36	
Factories		2	..	..	..	..	..	..	2	
Total		35	41	32	31	10	..	5	154	

The Titicus River, with its Tributaries.

This stream takes its rise on the eastern limit of the water-shed, in the State of Connecticut, and from the State line flows in a general easterly direction to its junction with the Croton river, at Purdy's, about one and one-half miles below Croton Falls. It passes through the Towns of North Salem, Salem Centre and Purdy's, and is about six and three-fourths miles in length from the State line (beyond which point it was not inspected) to its mouth. About one-third mile east from Purdy's, the dam for new Reservoir "M" is being built under the supervision of the Aqueduct Commission.

A number of small tributaries join the river along its course, the largest of which is a brook draining a considerable area to the south of the river, and entering it at the Town of Salem Centre. The configuration of the land is such that the general drainage of North Salem and Salem Centre is towards the river, or towards the tributaries which flow through these towns. The Town of Purdy's is largely located on a flat, so that the general drainage of a considerable portion of the town is not so directly towards the river as in the cases of North Salem and Salem Centre.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 27	192	Titicus river, north bank, east of North Salem	Barn	50	Steep slope.
" 27	192	Titicus river, north bank, east of North Salem	Manure heap	70	"
" 27	192	Titicus river, north bank, east of North Salem	Poultry yard	70	"
" 27	192	Titicus river, north bank, east of North Salem	Privy	90	Loose stone vault. Steep slope.
" 27	193	Small tributary from the north, enters river east of North Salem	"	150	Loose stone vault. Brook dried up.
" 27	193	Small tributary from the north, enters river east of North Salem	Dwelling	70	Slops thrown out. Brook dried up.
" 27	193	Small tributary from the north, enters river east of North Salem	Barn	45	Brook dried up.
" 27	193	Small tributary from the north, enters river east of North Salem	Poultry yard	15	"
" 27	194	Small tributary from the north, enters river at North Salem	Dwelling	35	Slops thrown into brook. West bank.
" 27	194	Small tributary from the north, enters river at North Salem	Privy	70	Tight wooden box vault, full. West bank.
" 27	194	Small tributary from the north, enters river at North Salem	Barn	50	West bank.
" 27	194	Small tributary from the north, enters river at North Salem	Poultry yard	50	"
" 27	194	Small tributary from the north, enters river at North Salem	Manure heap	50	"
" 27	195	Small tributary from the north, enters river at North Salem	Barn	100	East bank. On edge of marsh drained by brook.
" 27	195	Small tributary from the north, enters river at North Salem	Manure and garbage heap	100	East bank. On edge of marsh drained by brook.
" 27	195	Small tributary from the north, enters river at North Salem	Dwelling	50	East bank. Measurement from open drain running to brook.
" 27	196	Fair sized tributary from the north, enters river at North Salem	Horse shed	50	East bank. Manure in same.
" 27	197	Fair sized tributary from the north, enters river at North Salem	Dwelling	60	Slops thrown out. West bank steep slope.
" 27	197	Fair sized tributary from the north, enters river at North Salem	Privy	15	No vault. West bank; steep slope.
" 27	198	Fair sized tributary from the north, enters river at North Salem	"	80	Loose stone vault. East bank.
" 27	198	Titicus river, north bank, at junction of above tributary in North Salem	Pig-pen	50	Extremely filthy. Steep slope.
" 27	198	Titicus river, north bank, at junction of above tributary in North Salem	Barn	50	Steep slope; refuse thrown on bank.
" 27	198	Titicus river, north bank, at junction of above tributary in North Salem	Manure heap	50	Very large. Steep slope.
" 27	199	Fair sized tributary from the north, enters river at North Salem	Barn	15	West bank.
" 27	199	Fair sized tributary from the north, enters river at North Salem	Manure heap	15	"
" 27	199	Fair sized tributary from the north, enters river at North Salem	Privy	60	Loose stone vault. West bank.
" 27	200	Small tributary from the south, enters river at North Salem	"	30	Cemented stone vault, leaky. East bank. Brook nearly dry.
" 27	200	Small tributary from the south, enters river at North Salem	Barn	10	East bank. Open drain runs from this to brook. Brook nearly dry.
" 27	200	Small tributary from the south, enters river at North Salem	Manure heap	10	East bank. Open drain runs from this to brook. Brook nearly dry.
" 27	200	Small tributary from the south, enters river at North Salem	Pig-pen	10	East bank. Open drain runs from this to brook. Brook nearly dry.
" 27	200	Small tributary from the south, enters river at North Salem	Poultry yard	10	East bank. Open rain runs from this to brook. Brook nearly dry.
" 27	201	Small tributary from the north, enters river at North Salem	Barn	*	East bank. Premises filthy.
" 27	201	Small tributary from the north, enters river at North Salem	Poultry yard	*	" "

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 17	201	Small tributary from the north, enters river at North Salem.....	Manure heap ..	*	Large heap. East bank. Premises filthy.
" 17	201	Small tributary from the north, enters river at North Salem	Privy.....	30	Wooden box vault. East bank. Premises filthy.
" 17	201	Small tributary from the north, enters river at North Salem.....	Dwelling	30	East bank. Slops thrown into open drain running to brook. Premises filthy.
" 17	202	Small tributary from the north, enters river at North Salem	Barn.....	*	West bank. Open drain into brook.
" 17	202	Small tributary from the north, enters river at North Salem	Manure heap..	*	" "
" 17	202	Small tributary from the north, enters river at North Salem	Poultry-house..	35	West bank.
" 17	202	Small tributary from the north, enters river at North Salem.....	Dwelling	60	Covered drain from same discharges twenty-five feet from brook; steep slope. West bank.
" 17	203	Titicus river, south bank, in North Salem	Barn	*	
" 17	203	Titicus river, south bank, in North Salem	Cider-mill	*	Large heap of rotting pomace alongside same.
" 17	204	Titicus river, north bank, in North Salem	Dwelling	30	
" 17	204	Titicus river, north bank, in North Salem	Privy.....	25	Uncemented earth vault.
" 17	204	Titicus river, north bank, in North Salem.....	Horse shed....	15	Manure in same.
" 17	205	Titicus river, north bank, in North Salem.....	Barn	130	Just back of No. 204. Steep slope.
" 17	205	Titicus river, north bank, in North Salem.....	Privy.....	80	Just back of No. 204; uncemented earth vault. Steep slope.
" 17	205	Titicus river, north bank, in North Salem.....	Poultry yard...	100	Just back of No. 204. Steep slope.
" 17	206	Titicus river, north bank, in North Salem	Privy.....	*	No vault; precipitous bank twenty feet high.
" 17	206	Titicus river, north bank, in North Salem	Barn	30	Very steep slope.
" 17	206	Titicus river, north bank, in North Salem	Manure heap..	25	Very steep slope; slops and garbage thrown on this heap.
" 17	207	Titicus river, north bank, in North Salem	Dwelling	*	Covered drain runs from house into river.
" 17	207	Titicus river, north bank, in North Salem	Privy	125	Loose stone vault; very steep slope.
" 17	208	Titicus river, north bank, in North Salem	Barn	*	
" 17	209	Titicus river, south bank, in North Salem	Dwelling	20	Garbage and slops thrown down bank.
" 17	209	Titicus river, south bank, in North Salem	Privy.....	*	No vault; precipitous bank.
" 17	209	Titicus river, south bank, in North Salem	Poultry yard ..	*	Precipitous bank.
" 17	209	Titicus river, south bank, in North Salem	Wash-house....	*	"
" 17	210	Titicus river, north bank, in North Salem	Privy	10	Loose stone vault.
" 17	210	Titicus river, north bank, in North Salem	Dwelling	70	Slops thrown out.
" 17	211	Titicus river, north bank, in North Salem	Poultry yard...	40	Garbage thrown on bank at this point.
" 17	212	Titicus river, north bank, in North Salem	Barn	*	Measurement from open drain running to river.
" 17	213	Titicus river, south bank, at junction of small tributary from south, between North Salem and Salem Centre	Dwelling	150	House drainage, including water-closets, discharged by tile drain into brook, which carries it on to surface of meadows, one hundred and fifty feet from river.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 17	213	Titicus river, south bank, at junction of small tributary from south, between North Salem and Salem Centre	Privy	50	From edge of river bank, twenty feet high; cemented stone vault.
" 17	213	Small tributary from south described above	Barn	150	
" 17	213	Small tributary from south described above	Manure heap	150	
" 17	213	Small tributary from south described above	Poultry yard	150	
" 18	214	Titicus river, south bank, between North Salem and Salem Centre	"	*	
" 18	214	Titicus river, south bank, between North Salem and Salem Centre	Dwelling	*	Garbage and slops thrown into river.
" 18	215	Titicus river, north bank, in Salem Centre	Barn	*	Large amount of garbage, old bones, etc., thrown down bank.
" 18	215	Titicus river, north bank, in Salem Centre	Poultry-house	*	North Salem Market; no slaughtering done on premises.
" 18	215	Titicus river, north bank, in Salem Centre	Privy	*	Loose stone vault; precipitous bank, ten feet high.
" 18	215	Titicus river, north bank, in Salem Centre	Dwelling	40	Slops thrown out.
" 18	216	Titicus river, north bank, in Salem Centre	"	50	"
" 18	216	Titicus river, north bank, in Salem Centre	Privy	*	Loose stone vault.
" 18	216	Titicus river, north bank, in Salem Centre	Poultry yard	*	
" 18	217	Titicus river, north bank, in Salem Centre	Cider-mill	*	Some manure and refuse thrown down bank.
" 18	218	Titicus river, north bank, in Salem Centre	Horse shed	50	Manure in same. Steep slope.
" 18	219	Titicus river, north bank, in Salem Centre	Dwelling	50	Slops and refuse thrown out.
" 18	219	Titicus river, north bank, in Salem Centre	Pig-pen	50	
" 18	219	Titicus river, north bank, in Salem Centre	Privy	25	Uncemented earth vault. Steep slope.
" 18	220	Small tributary from north, enters river at Salem Centre	"	25	Loose stone vault; brook dried up. East bank.
" 18	220	Small tributary from north, enters river at Salem Centre	Refuse heap	*	Slops thrown into brook. Brook dried up. East bank.
" 18	220	Small tributary from north, enters river at Salem Centre	Wash-house	*	Slops thrown into brook. Brook dried up. East bank.
" 18	221	Fair sized tributary from north, enters river west of Salem Centre.	Pig-pen	60	Filthy. On edge of marshy ground drained by brook. East bank.
" 18	221	Fair sized tributary from north, enters river west of Salem Centre	Privy	15	No vault. East bank.
" 18	222	Titicus river, north bank, between Salem Centre and Purdy's	"	..	Loose stone vault. Perpendicular bank, seven feet high.
" 18	222	Titicus river, north bank, between Salem Centre and Purdy's	Pig-pen	..	Filthy.
" 18	222	Titicus river, north bank, between Salem Centre and Purdy's	Dwelling	30	Slops thrown out; steep slope.
" 18	223	Small pond formed by tributary from north; enters river between Salem Centre and Purdy's	"	80	Slops thrown out at this point. West bank.
" 18	224	Pond formed by good sized tributary from north, same enters river between Salem Centre and Purdy's	"	200	House drainage discharged by tile pipes at this point. East bank.
" 18	224	Pond formed by good sized tributary from north, same enters river between Salem Centre and Purdy's	Barn	60	Occupied by coachman's family; slops thrown out; surface drained alongside barn to pond.
" 18	224	Tributary above the pond	Manure heap	45	Very large heap. East bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 18	224	Tributary above the pond.....	Poultry yard...	*	Very large yard; brook runs directly through same.
" 18	225	Tributary below the pond.....	Milk factory...	*	T. W. Decker's Dairy and Milk Bottling Establishment; washings discharged into brook.
" 18	225	"	Barn	50	T. W. Decker's Dairy and Milk Bottling Establishment. Ninety-six cows; quite steep slope.
" 18	225	Titicus river, at junction of above tributary.....	Horse shed....	*	T. W. Decker's Dairy and Milk Bottling Establishment. Built over feeder and on river.
" 18	225	Titicus river, at junction of above tributary.....	Barn	*	T. W. Decker's Dairy and Milk Bottling Establishment. Fourteen horses; built over feeder and on river.
" 18	226	Titicus river, north bank, between North Salem and Purdy's.....	Poultry yard...	*	
" 18	226	Titicus river, north bank, between North Salem and Purdy's.....	Privy.....	*	Loose stone vault; excrement flowing directly into river.
" 18	226	Titicus river, north bank, between North Salem and Purdy's.....	Dwelling	*	Slops thrown out; premises generally dirty.
" 18	227	Titicus river, north bank, between North Salem and Purdy's.....	Barn.....	100	
" 18	227	Titicus river, north bank, between North Salem and Purdy's.....	Pig-pen.....	100	
" 18	227	Titicus river, north bank, between North Salem and Purdy's.....	Poultry yard..	100	
" 18	228	Small tributary from north, enters river through sand and stone-dump, 100 feet thick, excavated from site of dam, new Reservoir "M," east of Purdy's.....	Privy	75	Uncemented earth vault; laborers' privy, at least six feet deep. East bank. Clothes washed in spring near this point, which empties into brook; brook now dry.
" 18	229	Small branch of above tributary from the east.....	Barn	30	Brook now dry; Nos. 228 and 229 on property occupied by contractors, new Reservoir "M."
" 18	230	Titicus river, south bank, at Purdy's..	Dwelling	50	Slops thrown into open drain running to river; premises dirty.
" 18	230	" " " ..	Privy.....	50	Uncemented earth vault.
" 18	230	" " " ..	Poultry yard...	50	
" 18	231	" " " ..	Dwelling	*	Slops and garbage thrown into river.
" 18	231	" " " ..	Privy.....	5	Leaky wooden box vault.
" 18	232	Titicus river, north bank, at Purdy's..	Dwelling	35	Slops thrown out.
" 18	232	" " " ..	Privy.....	20	Loose stone vault.
" 18	233	Titicus river, south bank, at Purdy's..	Barn.....	*	
" 18	233	" " "	Manure and garbage heap	*	Very large heap; retained by cemented stone wall.
" 18	233	" " " ..	Garbage heap..	*	
" 18	233	" " " ..	Privy	30	Tight wooden box vault.
" 18	233	" " " ..	Cesspool.....	100	Loose stone; receives house drainage. Premises generally clean.
" 18	234	" " " ..	Factory.....	*	New York Condensed Milk Company; washings discharged into river; same dirty with foul odor.
" 18	234	" " " ..	Privy.....	15	New York Condensed Milk Company. Cemented stone vault; use permitted by State Board of Health.
" 18	235	" " " ..	Refuse heap...	*	Very large dump, extending fifty feet along bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 18	236	Titicus river, south bank, at Purdy's..	Garbage heap..	*	Large heap.
" 18	237	" " "	Wheelwright shop.....	*	
" 18	238	" " " ..	Dwelling	*	Slops thrown down bank.
" 18	238	" " " ..	Privy.....	10	Loose stone vault.

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries.....		..	..	..	..	..	..	..	..	
Privies	No vault.....	3	2	..	..	..	..	..	5	29
	Uncemented earth vault	..	2	1	2	..	..	..	5	
	Loose stone vault..	3	4	..	3	2	..	..	12	
	Cemented stone vault.....	1	..	2	..	..	..	..	3	
	Wooden box vault.....	..	1	2	1	..	..	..	4	
Cesspools	Loose stone vault.....	..	..	..	1	..	..	..	1	1
	Cemented stone vault.....	..	..	..	..	..	..	..	..	
Slaughter-houses		..	..	..	..	..	..	..	..	
Pig-pens.....		1	1	2	2	..	..	..	6	
Poultry houses and yards.....		7	2	4	3	1	..	..	17	
Manure heaps.....		3	3	3	2	1	..	..	12	
Garbage heaps.....		5	1	..	1	..	..	..	7	
Barns and barnyards.		8	2	7	3	2	..	..	22	
Horse and cattle sheds		1	1	2	..	..	..	..	4	
Dwellings.....		7	2	10	4	1	1	..	25	
Factories		5	..	..	..	..	..	..	5	
Total		44	21	33	22	7	1	..	128	

The Cross River, with its Tributaries.

This stream has its source in Cross pond, on the eastern limit of the water-shed, whence it flows in a general easterly direction to its junction with the Croton river, near Katonah, five and a half miles below Croton Falls. It passes through the towns of Boutonville, Cross River and Katonah, and is about nine miles in length. Its main tributaries are the Waccabuc river, which

is the outlet of Lake Waccabuc, North pond and South pond, and which enters it from the north at Boutonville, a large brook entering it from the north at Cross River, and a stream nearly equaling the river itself in size, which enters it from the south just above Katonah, and is formed by the confluence of Davis brook, Broad brook and Stone Hill river, with their tributaries. These latter streams drain a large area to the south of the river. A dam, just below Katonah, converts the stream into a mill pond during its passage through the town. The general drainage of Boutonville, Cross River and Katonah is towards the river, or the tributaries which flow into it through Boutonville and Cross River.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 15	239	Cross river, north bank, at Boutonville.	Dwelling.....	*	Slops thrown out.
" 15	239	" "	Privy	30	Tub vault, fairly clean; steep slope.
" 15	239	" "	Poultry-house..	60	Steep slope.
" 15	240	" "	Dwelling.....	70	Slops thrown out.
" 15	240	" "	Privy.....	70	Uncemented earth vault.
" 15	240	" "	Barn.....	150	
" 15	240	" "	Manure heap..	150	Very large heap.
" 15	240	" "	Pig-pen.....	150	Filthy.
" 15	241	Cross river, south bank, at Boutonville.	Dwelling.....	15	Slops thrown out.
" 15	241	" "	Privy.....	50	Loose stone vault.
" 15	241	" "	Barn	50	Unoccupied.
" 15	241	" "	Poultry yard..	75	
" 15	242	Tributary from north, enters river at Boutonville.....	Dwelling.....	*	Slops thrown out. West bank.
" 15	242	Tributary from north, enters river at Boutonville.....	Pig-pen.....	*	East bank.
" 15	242	Tributary from north, enters river at Boutonville.....	Privy	*	Tub vault, full of liquid filth. East bank.
" 15	243	Cross river, south bank, at Boutonville.	"	80	No vault; steep slope.
" 15	243	" "	Dwelling.....	125	Slops thrown out; steep slope.
" 15	243	" "	Barn.....	100	Pigs kept in same; steep slope.
" 15	244	Small tributary from south, enters river one and one-half miles above Cross River Village.....	Privy	20	No vault; now unused, but contains excrement; premises unoccupied.
" 15	245	East branch of tributary from south, enters river three-fourths mile above Cross River Village.....	Dwelling.....	80	Slops thrown out; steep slope.
" 15	245	East branch of tributary from south, enters river three-fourths mile above Cross River Village.....	Privy	50	Loose stone vault; excrement oozing out; steep slope.
" 15	245	East branch of tributary from south, enters river three-fourths mile above Cross River Village.....	Pig-pen.....	20	Very filthy.
" 15	245	East branch of tributary from south, enters river three-fourths mile above Cross River Village.....	Poultry yard..	35	

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 25	246	Small tributary from south, enters river one-half mile above Cross River Village	Privy	80	No vault. East bank.
" 25	246	Small tributary from south, enters river one-half mile above Cross River Village	Pig-pen	50	Filthy. East bank.
" 25	246	Small tributary from south, enters river one-half mile above Cross River Village	Barn	20	West bank.
" 25	246	Small tributary from south, enters river one-half mile above Cross River Village	Manure heap	20	"
" 25	247	West branch of above tributary (see No. 246)	Barn	*	East bank.
" 24	248	Cross river, south bank, at Village of Cross River	Wheelwright shop	*	
" 24	249	Cross river, north bank, at Village of Cross River	Horse shed	150	Manure in same; steep slope.
" 24	250	Cross river, north bank, at Village of Cross River	Dwelling	10	Slops thrown out.
" 24	250	Cross river, north bank, at Village of Cross River	Privy	50	Tub vault, overflowed; open drain from same towards river; manure scattered about.
" 24	251	Cross river, south bank, at Village of Cross River	Barn	70	
" 24	251	Cross river, south bank, at Village of Cross River	Manure heap	100	
" 24	251	Cross river, south bank, at Village of Cross River	Privy	15	Loose stone vault; steep slope.
" 24	251	Cross river, south bank, at Village of Cross River	Garbage heap	*	
" 24	251	Cross river, south bank, at Village of Cross River	Dwelling	30	Slops thrown out; steep slope.
" 24	251	Cross river, south bank, at Village of Cross River	Wash-house	*	Slops thrown out.
" 24	252	Large tributary from north, enters river and forms mill pond in Village of Cross River	Barn	*	Unoccupied. East bank.
" 24	253	Large tributary from north, enters river and forms mill pond in Village of Cross River	Dwelling	70	Slops thrown out. West bank.
" 24	253	Large tributary from north, enters river and forms mill pond in Village of Cross River	Privy	110	No vault; forty feet from swamp drained by brook. West bank.
" 24	254	Large tributary from north, enters river and forms mill pond in Village of Cross River	"	*	No vault. East bank.
" 24	254	Large tributary from north, enters river and forms mill pond in Village of Cross River	Dwelling	30	Slops thrown into open drain running to brook. East bank.
" 24	255	Large tributary from north, enters river and forms mill pon in Village of Cross Rive	Privy	70	Loose stone vault. West bank of mill pond.
" 24	255	Large tributary from north, enters river and forms mill pond in Village of Cross River	Dwelling	60	Slops thrown into open drain running to mill pond. West bank.
" 24	256	Large tributary from north, enters river and forms mill pond in Village of Cross River	Barn	25	Apparently unoccupied. East bank of mill pond.
" 24	256	Large tributary from north, enters river and forms mill pond in Village of Cross Ri	Poultry yard	25	Apparently unoccupied. East bank of mill pond.
" 24	256	Large tributary from north, enters river and forms mill pond in Village of Cross River	Privy	5	Cemented stone vault. East bank of mill pond.
" 24	257	Cross river, south bank, at Village of Cross River	"	110	Leaky wooden box vault.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 14	257	Cross river, south bank, at Village of Cross River	Barn	110	
" 14	257	Cross river, south bank, at Village of Cross River	Garbage heap	110	
" 14	258	Cross river, south bank, at Village of Cross River	Slaughter-house	15	Blood discharged through trough into pail, ten feet from slough drained by river; some blood spilt on ground. Offal removed; premises fairly clean.
" 14	259	Cross river, south bank, at Village of Cross River	Two barns	130	From slough drained by river (see No. 258).
" 14	259	Cross river, south bank, at Village of Cross River	Two poultry-houses	130	From slough drained by river (see No. 258).
" 14	260	Cross river, south bank, at Village of Cross River	Privy	100	Loose stone vault; steep slope.
" 14	260	Cross river, south bank, at Village of Cross River	Pig-pen	50	Filthy; open drain from same towards river; steep slope.
" 14	260	Cross river, south bank, at Village of Cross River	Dwelling	150	Slops thrown out; steep slope.
" 14	260	Cross river, south bank, at Village of Cross River	Poultry yard	150	Steep slope.
" 14	261	Cross river, south bank, three-fourths mile below Village of Cross River	Barn	100	
" 14	261	Cross river, south bank, three-fourths mile below Village of Cross River	Poultry-house	100	
" 14	262	Cross river, south bank, two and one-half miles below Village of Cross River	Dwelling	80	Slops thrown out; steep slope.
" 14	263	Cross river, north bank, two and one-half miles below Village of Cross River	Poultry-house	125	
" 14	263	Cross river, north bank, two and one-half miles below Village of Cross River	Barn and barn-yard	80	Covered drain from barnyard to a point fifty feet from river. Premises clean.
" 14	264	Small tributary from north, enters river two and three-fourths miles below Village of Cross River	Manure and garbage heap	100	Large heap, offensive; very steep slope. West bank.
" 14	264	Small tributary from north, enters river two and three-fourths miles below Village of Cross River	Privy	25	Leaky wooden box vault; very steep slope. West bank.
" 14	264	Small tributary from north, enters river two and three-fourths miles below Village of Cross River	Dwelling	80	Slops thrown out; very steep slope. West bank. Garbage scattered on bank.
" 14	265	Cross river, north bank, two and three-fourths miles below Village of Cross River	Privy	25	Loose stone vault, unused; premises unoccupied; refuse scattered on bank.
" 14	266	Small tributary from north, enters river three miles below Village of Cross River	Dwelling	60	Slops and garbage thrown out; steep slope. West bank.
" 14	266	Small tributary from north, enters river three miles below Village of Cross River	Privy	90	Loose stone vault; steep slope. West bank.
" 14	266	Small tributary from north, enters river three miles below Village of Cross River	Pig-pen	65	Drain from same towards brook; steep slope. West bank.
" 14	266	Small tributary from north, enters river three miles below Village of Cross River	"	15	Large and very filthy. East bank.
" 14	266	Small tributary from north, enters river three miles below Village of Cross River	Garbage and manure heap	20	Large heap. East bank.
" 14	267	Small tributary from north, enters river one mile above Katonah	Dwelling	15	Slops thrown out; no privy on premises. West bank.
" 14	267	Small tributary from north, enters river one mile above Katonah	Barn	150	West bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 25	268	Cross river, south bank, three-fourths mile above Katonah.....	Dwelling	30	Slops thrown out.
" 25	268	Cross river, south bank, three-fourths mile above Katonah.....	Privy.....	80	Uncemented earth vault; very steep slope.
" 25	268	Cross river, south bank, three-fourths mile above Katonah.....	Poultry-house..	80	Very steep slope.
" 22	269	Cross river, south bank, at Katonah.	Barn	110	Open drain runs from same to river; steep slope for seventy feet.
" 19	269	" "	Garbage and manure heap	110	Open drain runs from [illegible] to river; steep slope for seventy feet.
" 22	270	" "	Slaughter-house	15	Tub at back for catching blood and offal, and partly full of same; fifteen feet from river, with open overflow drain to water's edge. Refuse scattered about; driveway to slaughter-house littered with manure. Steep slope.
" 22	270	" "	Barn	75	Steep slope.
" 22	270	" "	Manure heap ..	75	Steep slope; large heap.
" 22	271	Cross river, north bank, at Katonah.	Blacksmithshop	*	
" 22	272	" "	Manure heap ..	20	Open drain from same to river.
" 22	271	" "	Barn	15	
" 22	271	" "	Manure heap ..	30	
" 22	272	" "	Dwelling	35	Kitchen drain from second story empties on to roadway.
" 22	273	" "	Privy	40	Cemented brick vault, full.
" 22	274	" "	Cesspool	30	Loose stone full and leaking; very offensive.
" 22	275	" "	Privy.....	70	Leaky tub vault; forty feet above river.
" 22	275	" "	"	80	Loose stone vault; forty feet above river.
" 22	275	" "	Cesspool	90	Loose stone vault; forty feet above river; receives drainage from large dwelling.
" 22	276	" "	Barn	35	
" 22	276	" "	Manure heap..	35	Large heap.
" 22	277	" "	House-drain...	35	Discharges on edge of roadway.
" 22	278	" "	Dwelling	225	Slops thrown into open paved drain, running down steep slope to roadway, and across same to river.
" 22	278	" "	"	150	Slops thrown into open paved drain, running down steep slope to roadway, and across same to river.
" 22	278	" "	"	50	Slops thrown into open paved drain running down steep slope to roadway, and across same to river.
" 22	279	" "	Barn	50	On above drain (see No. 278).
" 22	279	" "	"	80	" "
" 22	279	" "	"	140	" "
" 22	279	" "	Manure heap..	50	" "
" 22	279	" "	" ..	80	" "
" 22	279	" "	" ..	140	" "

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 12	279	Cross river, north bank, at Katonah.	Hotel	215	Slops thrown into above drain (see No. 278).
" 12	280	" "	Garbage heap..	*	North bank of river, through the town, littered in many places with refuse.
" 12	281	Cross river, south bank, at Katonah.	Poultry yard..	100	Large yard; ground flat and sandy.
" 12	282	Cross river, north bank, at Katonah.	Large privy....	150	Steep slope for eighty feet; loose stone vault.
" 12	282	" "	Cesspool	50	Loose stone. Slops thrown out from dwellings, sixty feet from river.
" 12	283	" "	"	50	Cemented stone; receives kitchen slops only; overflow pipe discharges forty feet from river.
" 12	283	" "	Privy	50	Cemented stone vault.
" 12	284	Cross river, south bank, at Katonah.	Large cemetery	164	Measurement from nearest grave; steep slope.
" 12	285	Small tributary from north, enters river at Katonah.....	House-drain ...	75	East bank; steep slope.
" 12	285	Small tributary from north, enters river at Katonah.....	Poultry-house..	60	" "
" 12	285	Small tributary from north, enters river at Katonah.....	Privy.....	75	Loose stone vault. East bank; steep slope.
" 12	286	Cross river, south bank, at Katonah.	Pig-pen.....	*	Precipitous bank, sixty feet high; some refuse on bank.
" 12	286	" "	Barn	10	Precipitous bank. Located back of pig-pen and ten feet above same.
" 12	286	" "	Large privy....	*	Cemented brick vault. Precipitous bank, sixty feet high; some refuse on bank.
" 12	286	" "	Manure pit and cesspool	30	Precipitous bank, sixty feet high. All house drainage (including water-closets) runs into this and overflows down steep bank, one hundred and sixty feet from river and parallel to same.
" 12	287	Cross river, north bank, at Katonah.	Garbage heap..	30	
" 12	287	" "	Dwelling	60	Slops thrown out.
" 12	287	" "	Privy.....	70	Loose stone vault.
" 12	287	" "	Barn.....	60	
" 12	287	" "	Manure heap...	60	
" 12	287	" "	Poultry yard...	70	
" 12	288	" "	Barn	50	Quite steep slope.
" 12	288	" "	Manure heap..	50	"
" 12	289	" "	Privy	40	Cemented stone vault, with box inside.
" 12	289	" "	Poultry yard...	*	
" 12	289	" "	Poultry-house .	30	
" 12	290	" "	Privy.....	30	Loose stone vault. Precipitous bank thirty feet high; rock.
" 12	290	" "	Poultry yard...	35	Large yard. Precipitous bank thirty feet high; rock.
" 12	291	" "	Barn	55	Precipitous bank, twenty feet high; rock.
" 12	291	" "	Manure heap...	65	Precipitous bank, twenty feet high; rock.
" 12	292	" "	Large privy ...	100	Cemented stone vault. Precipitous bank, twenty feet high; rock.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination	Distance from Water's Edge, in Feet.	Remarks.
Sept. 22	293	Cross river, north bank, at Katonah...	Privy.....	75	Uncemented earth vault. Quite steep slope.
" 22	293	" "	Pig-pen.....	70	Quite steep slope.
" 22	293	" "	Dwelling	70	Slops thrown out.
" 22	294	Small tributary from south, enters river at Katonah.....	Privy.....	10	Loose stone vault. West bank; rubbish and filth of all descriptions thrown on bank and into brook for a distance of one hundred feet; brook nearly dry.
" 22	294	Small tributary from south, enters river at Katonah.....	Poultry-house..	*	West bank.
" 22	294	Small tributary from south, enters river at Katonah.....	Barn	*	Unoccupied. West bank.
" 22	294	Small tributary from south, enters river at Katonah.....	Privy.....	*	Tub vault, full and filthy. West bank.
" 22	295	Small tributary from south, enters river at Katonah.....	Garbage heap..	*	East bank.
" 22	295	Small tributary from south, enters river at Katonah.....	Large privy ...	*	Loose stone vault. East bank.
" 22	295	Small tributary from south, enters river at Katonah.....	Dwelling	50	Slops thrown out; east bank.

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries		..	..	..	..	..	1	..	1	
Privies	No vault	1	1	..	2	1	..	..	5	35
	Uncemented earth vault	..	..	..	3	..	..	..	3	
	Loose stone vault	1	3	3	6	1	..	..	14	
	Cemented stone vault	1	1	3	1	..	..	..	6	
	Wooden box vault	2	..	3	1	1	..	..	7	
Cesspools	Loose stone vault	..	..	3	1	..	..	..	4	5
	Cemented stone vault	..	..	1	..	..	..	..	1	
Slaughter-houses		..	2	..	..	..	..	..	2	
Pig-pens		2	2	2	2	1	..	..	9	
Poultry houses and yards		2	1	3	6	4	..	..	16	
Manure heaps		..	3	5	7	3	..	..	18	
Garbage heaps			1	1	1	2	..	..	8	
Barns and barnyards		3	4	4	8	7	..	..	26	
Horse and cattle sheds		..	..	..	..	1	..	..	1	
Dwellings		3	3	7	10	3	2	..	28	
Factories		2	..	..	..	..	..	..	2	
Total		20	21	35	48	24	3	..	151	

Lake Mahopac and the Muscoot River, with their Tributaries.

Lake Mahopac.—This lake is located near the western limit of the water-shed, about three miles west of the junction of the Middle and West Branches of the Croton river, and four miles south of Reservoir "E," and is about one and one-third miles long and one mile wide at its widest part. The lake is fed almost entirely by springs, having but one tributary, the outlet of Mud pond, which enters it near its northern extremity. The Village of Mahopac is located on the eastern shore of the lake, but is drained by a brook which flows into the combined West and Middle Branches. Cesspools are largely used to receive the drainage of the dwellings located on or near the lake shores, and prevent, to a certain extent, the direct pollution of the water of the lake. In this respect the conditions are much better than those existing on Lake Gleneida. (Compare results of inspection of Lakes Mahopac and Gleneida.) No water can be drawn from Lake Mahopac until after September 1 of each year, and the amount so drawn must not exceed five hundred and forty million gallons, which is equivalent to lowering the water level three feet. At the time of our inspection (September 9, 1891), no water was being drawn from the lake, the natural overflow amounting to a fair-sized brook. The outlet of the lake is at its southwestern extremity, and forms one of the sources of the Muscoot river.

Muscoot River.—The sources of this stream are the outlets of Kirk Lake and Lake Mahopac, which join at the small Village of Mahopac Falls, about one-half mile from Lake Mahopac. From this point the river flows in a general southerly direction for about seven miles, and then easterly for about two miles, to its junction with the Croton river, near Katonah. Its main tributaries are Secor Lake outlet, which enters it from the west, about one and one-fourth miles below Mahopac Falls, and Amawalk brook, a large stream, draining, with its branches, the Towns of Amawalk and Yorktown, and a large extent of territory to the west of the river, which it enters from the west, about seven and one-third miles south of Mahopac Falls. The dam for new Reservoir "A" is being built on the river, about one-third of a mile north of Amawalk brook, under the supervision of the Department of Public Works. The general drainage of the Village of Mahopac Falls is towards the river.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 10	296	Lake Mahopac, north shore.....	Barn	60	Steep slope.
" 10	296	" "	Manure and garbage heap	60	Retained by cemented brick wall; steep slope.
" 10	296	" "	Privy.....	10	Very deep cemented brick vault; fifteen feet above lake.
" 10	297	" "	Poultry yard...	40	Large number of fowls kept.
" 10	297	" "	Pig-pen	90	
" 10	298	Lake Mahopac, east shore.....	Privy.....	60	Cemented stone vault; said to be tight.
" 10	298	" "	Dwelling	*	
" 10	298	" "	Cesspool	80	Receives kitchen slops from above dwelling; said to be tight and frequently cleaned.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 20	299	Lake Mahopac, east shore, at Cole House	Two cesspools.	200	Loose stone; receive drainage of kitchen and water-closets in Cole House.
" 20	299	Lake Mahopac, east shore, at Cole House	Cesspool	250	Loose stone; receives drainage from laundry at Cole House.
" 20	300	Lake Mahopac, east shore	Privy	5	Tight wooden box vault, half full; contents removed at intervals.
" 20	301	" "	"	70	Cemented stone vault; apparently tight.
" 20	302	" "	Store	10	Garbage and refuse thrown out.
" 20	303	Lake Mahopac, south shore, at Thompson House	Three cesspools	200	Loose stone; receives drainage of kitchen and water-closets in Thompson House.
" 20	303	Lake Mahopac, south shore, at Thompson House	Cesspool	150	Loose stone; receives overflow from above cesspools; same seldom occurs.
" 20	303	Lake Mahopac, south shore, at Thompson House	Privy	35	Wooden box vault, broken; to be removed; near billiard room of Thompson House. Note—Hotel premises are generally in cleanly condition.
" 20	304	Lake Mahopac, south shore	Washhouse	*	Built partly over water; slops thrown into lake. Outbuilding of Thompson House.
" 20	304	" "	Privy	25	Wooden box vault, broken; outbuilding of Thompson House.
" 20	305	" "	Barn	25	Twenty-eight horses; manure frequently removed; outbuilding of Thompson House.
" 20	306	" "	Chicken slaughter-house	*	Built partly over water; outbuilding of Thompson House.
" 20	306	" "	Poultry yard	40	On swampy ground, on edge of swamp draining into lake; outbuilding of Thompson House.
" 20	306	" "	Garbage heap	40	On swampy ground, on edge of swamp draining into lake. Note—Were informed by proprietor of Thompson House that Nos. 304 to 306 would be removed as soon as possible after October 1, 1891.
" 20	307	" "	Cesspool	100	Cemented stone; receives drainage (including water-closets) of large dwelling. Nearly full, and provided with overflow pipe to drain running to lake.
" 20	307	" "	Barn	40	
" 20	307	" "	Dwelling	30	Slops thrown out; gardener's house.
" 20	307	" "	Privy	30	Leaky wooden box vault.
" 20	307	" "	Garbage heap	35	
" 20	308	Lake Mahopac, on small island, near south shore	Privy	100	Cemented brick vault; fresh earth thrown in at intervals.
" 20	308	Lake Mahopac, on small island, near south shore	Cesspool	50	Cemented stone; receives kitchen slops only.
" 20	308	Lake Mahopac, on small island, near south shore	Barn	30	
" 20	308	Lake Mahopac, on small island, near south shore	Manure pit	15	Earth bottom; premises generally in cleanly condition.
" 20	309	Lake Mahopac, south shore	Dwelling	12	Slops thrown out.
" 20	309	" "	Privy	10	Cemented stone vault.
" 20	310	" "	Dwelling	25	Slops thrown into open drain running to lake.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 10	310	Lake Mahopac, south shore	Privy	10	Deep cemented stone vault.
" 10	310	" "	Poultry-house .	10	
" 10	311	" "	Privy	15	Cemented stone vault with tight box inside same full of liquid filth.
" 10	311	" "	Barn	20	Manure scattered about.
" 10	311	" "	Cesspool	40	Loose stone receives kitchen slops only.
" 10	312	" "	Privy.....	5	Shallow earth vault; dry ashes thrown in daily and the whole frequently removed; clean and dry at time of inspection.
" 10	312	" "	Cesspool.....	10	Loose stone; receives pantry slops only.
" 10	312	" "	"	5	Loose stone; receives kitchen slops only.
" 10	313	Small tributary, entering lake from the south.....	Dwelling	15	Slops thrown into brook. West bank.
" 10	313	Small tributary, entering lake from the south.....	Barn	150	East bank.
" 10	313	Small tributary, entering lake from the south.....	Manure heap...	150	..
" 10	314	Lake Mahopac outlet, south bank	Poultry yard...	*	
" 10	314	" "	Dwelling	15	Slops thrown out.
" 10	314	" "	Privy	15	Cemented stone vault.
" 10	315	" "	"	15	"
" 10	315	" "	Dwelling.....	5	Slops thrown out.
" 10	316	" "	Barn	*	Very clean; manure frequently removed.
" 10	316	" "	Privy	50	Tight wooden box vault.
" 10	316	" "	Barn	100	Premises generally clean.
" 10	317	Muscoot river, east bank, at Mahopac Falls.....	Privy	30	Uncemented earth vault.
" 10	318	Muscoot river, west bank, at Mahopac Falls	"	15	Cemented stone vault.
" 10	318	Muscoot river west bank, at Mahopac Falls	"	5	Uncemented earth vault.
" 10	318	Muscoot river, west bank, at Mahopac Falls	Two barns.....	*	
" 10	318	Muscoot river, west bank, at Mahopac Falls.....	Manure heap..	*	
" 10	319	Muscoot river, east bank, at Mahopac Falls.	Barn	*	
" 10	319	Muscoot river, east bank, at Mahopac Falls	Manure heap ..	*	
" 10	320	Small tributary from northwest, enters river one-half mile below Mahopac Falls.....	Privy	*	Tight wooden box vault. East bank.
" 10	320	Small tributary from northwest, enters river one-half mile below Mahopac Falls.	Manure heap..	15	East bank.
" 10	321	Small tributary from northwest, enters river one-half mile below Mahopac Falls.	Privy	10	Deep loose stone vault. East bank.
" 10	321	Small triutary from northwest, enters river one-half mile below Mahopac Falls	Dwelling	*	Slops thrown out. East bank.
" 10	322	Muscoot river, east bank, two and one half miles below Mahopac Falls	Privy	60	Now unused, but contains excrement; premises unoccupied; uncemented earth vault.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 10	323	Muscoot river, west bank, two and one-half miles below Mahopac Falls	Barn	50	
" 10	323	Muscoot river, west bank, two and one-half miles below Mahopac Falls	Manure heap	100	
" 11	324	Muscoot river, east bank, five miles below Mahopac Falls	Privy	100	Loose stone vault; steep slope.
" 11	324	Muscoot river, east bank, five miles below Mahopac Falls	Dwelling	125	Slops thrown out; steep slope.
" 11	324	Muscoot river, east bank, five miles below Mahopac Falls	Pig-pen	100	Steep slope; fifteen cows standing in river.
" 11	325	Muscoot river, east bank, five and one-fourth miles below Mahopac Falls	Barn and barnyard	80	
" 11	325	Muscoot river, east bank, five and one-fourth miles below Mahopac Falls	Manure heap	80	Very large heap.
" 11	325	Muscoot river, east bank, five and one-fourth miles below Mahopac Falls	Pig-pen	150	Open drain runs from pig-pen to barnyard.
" 11	326	Muscoot river, west bank, at office of Engineer, new Reservoir "A"	Barn	100	Cow barn now unoccupied; within line of new reservoir.
" 11	326	Muscoot river, west bank, at office of Engineer, new Reservoir "A"	"	60	Three horses; within line of new reservoir.
" 11	326	Muscoot river, west bank, at office of Engineer, new Reservoir "A"	Manure heap	60	Within line of new reservoir.
" 11	326	Muscoot river, west bank, at office of Engineer, new Reservoir "A"	Large pig-pen	47	Now unoccupied; dirty; within line of new reservoir.
" 11	327	Small spring, tributary from east, enters river one-third mile below No. 326	Barn and barnyard	30	Manure in barnyard; open drain runs through same to brook; within line of new reservoir.
" 11	328	Small tributary from east, enters river three-fourths mile below No. 326	Dwelling	10	Quarters of laborers employed on dam; slops and garbage thrown into brook.
" 11	328	Muscoot river, east bank, at junction of above tributary	Privy	100	Uncemented earth vault; measurement from point to which excrement flows through open drain from privy down steep slope. Clothes washed in river.
" 11	329	Muscoot river, west bank, two and one-fourth miles above junction with Croton river	Manure pit	20	Cemented stone; manure removed at intervals. At settlement of the Christian Brotherhood; premises generally in good sanitary condition; dormitories provided with tight cesspools, frequently cleaned; no privies.

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries		..	..	..	..	..	.	..	..	
Privies	No vault	..	1	..	..	..	..	..	1	23
	Uncemented earth vault	..	1	1	2	..	..	..	4	
	Loose stone vault	..	1	..	1	..	..	..	2	
	Cemented stone vault	..	6	..	3	..	..	..	9	
	Wooden box vault	1	3	3	..	..	..	..	7	

Summary.	On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.
Cesspools { Loose stone vault	..	2	1	..	1	6	..	10 } 13
Cesspools { Cemented stone vault	..	..	1	2	..	..	..	3 }
Slaughter-houses	..	..	..	..	..	..	..	..
Pig-pens	..	..	1	2	1	..	..	4
Poultry houses and yards	2	1	2	..	..	..	..	5
Manure heaps	2	3	..	4	1	..	..	10
Garbage heaps	..	..	2	1	..	..	..	3
Barns and barnyards	4	2	4	5	1	..	..	16
Horse and cattle sheds	..	..	..	..	..	..	..	..
Dwellings	3	7	1	..	1	..	..	12
Factories	..	..	..	..	..	..	..	..
Total	12	27	16	20	5	6	..	86

The Croton River, from the Junction of its Branches to Croton Lake, with its Tributaries.

From the junction of the combined Middle and West Branches with the East Branch, just below Croton Falls, this stream flows in a general southwesterly direction to the head of Croton Lake, a distance of about eight miles. A portion of the towns of Purdy's, Golden's Bridge and Katonah are located on the east bank. Its main tributaries, exclusive of the Titicus, Cross and Muscoot rivers, already described, are Plum brook, a large stream draining the Town of Somers Centre, and entering the river from the west about three-fourths mile below Golden's Bridge, and two large brooks, entering the river from the east, at points respectively just above and about one and three-fourths miles below Golden's Bridge. A small tributary from the east flows through Golden's Bridge and drains the town. At the time of our inspection (September 16) this stream was dry from the river to a point about the centre of the village, but at most seasons it is a fair sized brook.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 19	330	Croton river, east bank, one mile below Croton Falls	Dwelling	75	Slops thrown out.
" 19	330	Croton river, east bank, one mile below Croton Falls	Privy	25	Uncemented earth vault.
" 19	331	Small tributary from west, enters river one-fourth mile above Purdy's	Two barns	45	Large cow barns; brook flows through barnyard. North bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 19	332	Small tributary from west, enters river one-fourth mile above Purdy's	Dwelling	35	Slops thrown out; premises filthy. North bank.
" 19	332	Small tributary from west, enters river one-fourth mile above Purdy's	Poultry-house	*	Premises filthy. North bank.
" 19	332	Small tributary from west, enters river one-fourth mile above Purdy's	Privy	60	Uncemented earth vault; premises filthy. North bank.
" 19	333	Croton river, west bank, near junction of above tributary	Dwelling	40	Slops thrown out.
" 19	333	Croton river, west bank, near junction of above tributary	Poultry-house	40	
" 19	333	Croton river, west bank, near junction of above tributary	Privy	110	Uncemented earth vault.
" 19	334	Croton river, east bank, at Purdy's	Barn	70	
" 19	334	" "	Manure heap	70	
" 19	334	" "	Two garbage heaps	*	
" 19	334	" "	Pig-pen	35	Very filthy.
" 19	334	" "	Manure heap	35	Large heap from pig-pen.
" 19	334	" "	Poultry yard	45	
" 19	334	" "	Privy	100	Loose stone vault.
" 19	334	" "	Barn	100	
" 19	335	" "	Privy	100	Loose stone vault.
" 19	335	" "	Poultry yard	*	
" 19	335	" "	Garbage heap	*	
" 19	336	" "	Poultry yard	*	
" 19	336	" "	Privy	30	Loose stone vault.
" 19	337	Small tributary from east, enters river three-fourths mile below Purdy's	Large pig-pen	25	Unoccupied; very steep slope. North bank.
" 19	337	Small tributary from east, enters river three-fourths mile below Purdy's	Poultry yard	25	Very steep slope. North bank.
" 19	338	Small tributary from east, enters river three-fourths mile below Purdy's	Barn	100	North bank.
" 19	338	Small tributary from east, enters river three-fourths mile below Purdy's	Manure heap	100	"
" 19	339	Small tributary from east, enters river three-fourths mile below Purdy's	Privy	150	Loose stone vault. South bank; steep slope.
" 19	340	Large tributary from east, enters river one-fourth mile above Golden's Bridge	Dwelling	30	Slops thrown out. North bank.
" 19	340	Large tributary from east, enters river one-fourth mile above Golden's Bridge	Poultry-house	60	North bank.
" 19	340	Large tributary from east, enters river one-fourth mile above Golden's Bridge	Privy	130	Uncemented earth vault. North bank.
" 16	341	Small tributary from east, through Golden's Bridge. North bank	Dwelling	70	Slops thrown out.

Croton Lake, with its Tributaries.

This lake is formed by Croton Dam, at which point the gate-houses of the Old and New Aqueducts are located. It is a narrow body of water, about five miles in length, lying in a general northeast and southwest direction. The Village of Pines Bridge is located on its eastern shore, about midway between its northern and southern extremities, and is drained by a small tributary entering the lake at this point.

We first visited the lake on August 14, 1891, and at that time found the water near the dam to be full of a vegetable growth, consisting of algae in the form of minute silklike threads. Its temperature near the dam, and ten feet below the surface, was 77° Fahr. The water-level was about ten feet below the spillway at the dam. At the time of final inspection (September 24 and 25, 1891) the water had risen to within three feet of the spillway, and the vegetable growth above noted had largely disappeared. The temperature of the water at Pines Bridge, midway between the north and south banks, was at bottom 72° Fahr., at top 74° Fahr. The air temperature at the same time was 78° Fahr.

The shores of the lake are unprotected by a wall at any point, and arable lands, with growing crops, extend to the water's edge at several points. A highway runs directly along the lake for a distance of about five miles on north and south shores, and road washings are carried into the lake by every rain-fall. At time of our inspection, cattle were grazing along the shores at several points, and standing in the lake. Much boating and fishing is done on the lake, twelve boats being counted at Pines Bridge alone. Considerable horse manure lay on the bridge crossing the lake at Pines Bridge. The brush and taller weeds along the lake shores had recently been gathered and burned, but a thick growth of weeds still remained, extending down to water level all around the lake.

A number of small tributaries enter the lake on both shores. The most important are as follows:

(1) Two large brooks, entering the lake from the south at nearly the same point, about one and two-thirds miles above the dam, and draining a considerable area. The brook to the west passes through the town of Cornell.

(2) Kisco brook. This is a large stream, entering the lake from the south, about three miles above the dam. Its branches pass through and drain the Village of Newcastle, and the large Town of Mount Kisco. A considerable portion of the latter town is located directly upon or on the edge of marshy ground, and in order to improve the land, open drains have been cut in every direction, connecting with the branch of Kisco brook which passes through the town, and draining the latter to a large extent, directly into the branch. Kirby's pond was located at the north end of the village of Newcastle, but is now converted into arable land, by subsoil drainage and removal of the dam. "Oakview" Cemetery is located on a sandy elevation near the branch of the brook which passes through Newcastle (see enumeration). It is a large cemetery, and in constant use as a place of burial.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 25	363	Small tributary from north, enters lake four and one-half miles above dam.	Poultry yard...	60	West bank.
" 25	363	Small tributary from north, enters lake four and one-half miles above dam.	Dwelling	100	Slops thrown out. West bank.
" 25	364	Small tributary from north, enters lake four and one-half miles above dam	Cesspool.....	100	Loose stone; receives house drainage, including water-closet; tile drain runs from cesspool to sand and broken rock, near spring emptying into brook; measurement made from end of drain to spring.
" 25	365	Small tributary from north, enters lake three miles above dam.....	Barn.....	160	West bank. Pig wallow (now dry) on water's edge.
" 25	365	Small tributary from north, enters lake three miles above dam.....	Poultry yard...	120	West bank. Brook runs through field in which are horses, pigs, hens and geese.
" 25	366	Small tributary from north, enters lake two and three-fourths miles above dam.....	Barn	25	West bank.
" 25	366	Croton Lake, north shore, at junction of above tributary.....	"	165	
" 25	366	Croton Lake, north shore, at junction of above tributary.....	Manure heap..	165	
" 25	366	Croton Lake, north shore, at junction of above tributary	Pig-pen.....	165	
" 25	367	Croton Lake, north shore, two and one-half miles above dam.	Dwelling	70	Slops thrown out; steep slope to roadway on edge of lake.
" 25	367	Croton Lake, north shore, two and one-half miles above dam.	Privy	120	Loose stone vault; steep slope.
" 25	368	Croton Lake, north shore, two and one-fourth miles above dam	Dwelling	160	Slops thrown out.
" 25	368	Croton Lake, north shore, two and one-fourth miles above dam.	Privy.....	160	Loose stone vault.
" 25	369	Croton Lake, north shore, two miles above dam.....	Dwelling.....	200	Slops thrown out.
" 25	369	Croton Lake, north shore, two miles above dam.....	Privy	200	Uncemented earth vault.
" 25	370	Croton Lake, north shore, opposite Pines Bridge.....	Blacksmith shop	50	
" 25	371	Croton Lake, north shore, at Croton Lake Station, about one and one-half miles above dam.....	Barley pit	900	Full of rotting grain and very offensive; open drain from same down steep slope to lake.
" 25	372	Small tributary from north, enters lake one and one-eighth miles above dam.....	Dwelling	100	Slops thrown out; precipitous bank, twenty-five feet high. West bank.
" 25	372	Small tributary from north, enters lake one and one-eighth miles above dam.....	Privy.....	50	No vault; precipitous bank, twenty-five feet high. West bank.
" 25	372	Small tributary from north, enters lake one and one-eighth miles above dam.....	Poultry-house..	*	Precipitous bank, twenty-five feet high. West bank.
" 25	373	Small tributary from north, enters lake one and one-eighth miles above dam	Dwelling	80	Slops thrown out; rubbish thrown down bank. West bank.
" 25	373	Small tributary from north, enters lake one and one-eighth miles above dam.....	Barn	*	West bank.
" 25	373	Small tributary from north, enters lake one and one-eighth miles above dam.	Manure pit....	*	West bank.
" 25	373	Small tributary from north, enters lake one and one-eighth miles above dam.	Pig-pen.....	10	East bank.
" 25	374	Small tributary from north, enters lake five-eighths mile above dam	Barn	80	West bank. Feeder supplies watering-trough at roadway.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 25	374	Small tributary from north, enters lake five-eighths mile above dam	Manure heap..	80	West bank. Feeder supplies watering-trough at roadway.
" 25	374	Small tributary from north enters lake five-eighths mile above dam	Poultry-house..	60	"
" 25	374	Small tributary from north enters lake five-eighths mile above dam	Barn	50	East bank.
" 25	375	Small tributary from north, enters lake [illegible]e-half mile above dam.	Dwelling	110	Slops thrown out. West bank. Eighty-five feet from lake itself.
" 25	375	Small tributary from north, enters lake one-half mile bove dam.	Privy.....	135	Loose stone vault.
" 25	376	Small tributary from north, enters lake three-eighths mile above dam	Two privies....	15	Loose stone vault; schoolhouse privies
" 25	377	Small tributary from south, enters lake one-eighth mile above dam..	Privy	25	Loose stone vault; premises generally dirty. West bank.
" 25	377	Small tributary from south, enters lake one-eighth mile above dam..	Dwelling	25	Slops thrown into covered drain, discharging into brook. East bank. Brook nearly dry; runs down steep slope.
" 25	378	Small tributary from south, enters lake one-eighth mile above dam..	"	35	Slops thrown out; steep slope. West bank.
" 25	378	Small tributary from south, enters lake one-eighth mile above dam..	Pig-pen.....	125	Steep slope; premises dirty. West bank.
" 25	379	Small tributary from south, enters lake one-half mile above dam.	Barn.....	20	East bank.
" 25	379	Small tributary from south, enters lake one-half mile above dam	Pig-pen.....	50	"
" 25	380	Small tributary from south, enters lake one-half mile above dam	Dwelling.....	30	Slops thrown out. East bank.
" 25	380	Small tributary from south, enters lake one-half mile above dam	Privy	90	Loose stone vault. East bank.
" 25	381	Large tributary from south, enters lake near Cornell, one and two-thirds miles above dam	Dwelling.....	60	Slops thrown out. West bank.
" 25	381	Large tributary from south enters lake near Cornell, one and two-thirds miles above dam.	Barn	75	West bank.
" 25	382	Large tributary from south, enters lake [illegible] Cornell, one and two-thirds miles above dam.....	"	75	East bank.
" 25	382	Large tributary from south, enters lake [illegible] Cornell, one and two-thirds milesabove dam	Blacksmith shop	75	"
" 25	383	Large tributary from south enters lake [illegible] Cornell, one and two-thirds miles above dam	Dwelling	100	Slops thrown out; junction of brook with lake. East bank.
" 25	383	Large tributary from south ente lake near Cornell, [illegible] and two-thirds miles above dam.	Privy.....	175	Loose stone vault; excrement oozing out from same. East bank.
" 25	384	Croton Lake, south shore, one and three-fourths miles above dam...	Cesspool.....	75	Loose stone; receives house drainage, including water-closets.
" 25	385	Small tributary from south, through Pines Bridge, two miles above dam.	Dwelling	20	Slops and garbage thrown down steep bank. West bank.
" 25	385	Small tributary from south, through Pines Bridge, two miles above dam.	Privy.....	60	Wooden box vault, broken; steep slope. West bank.
" 25	386	Small tributary from south, through Pines Bridge, two miles above dam.	Dwelling	30	Slops thrown out; steep slope. East bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 25	386	Small tributary from south, through Pines Bridge, two miles above dam	Privy	30	Wooden box vault; steep slope. East bank. Premises generally dirty.
" 25	387	Small tributary from south, through Pines Bridge, two miles above dam	Barn	*	West bank.
" 25	387	Small tributary from south, through Pines Bridge, two miles above dam	Manure and garbage heap.	25	Large heap. West bank. Steep slope.
" 25	388	Small tributary from south, through Pines Bridge, two miles above dam	Barn	25	Sheep kept in barn. West bank.
" 25	388	Small tributary from south, through Pines Bridge, two miles above dam	Garbage pit	35	Steep slope; garbage scattered on same, ten feet from brook. West bank.
" 25	388	Small tributary from south, through Pines Bridge, two miles above dam	Cesspool	50	Cemented stone, tight; receives house drainage. West bank.
" 25	388	Small tributary from south, through Pines Bridge, two miles above dam	Privy	50	Wooden box vault; steep slope; hole thirty feet from brook, in which contents of privy vault have apparently been buried. West bank.
" 25	389	Small tributary from south, through Pines Bridge, two miles above dam	Barn	*	East bank
" 25	389	Small tributary from south, through Pines Bridge, two miles above dam	Manure heap	*	"
" 25	389	Small tributary from south, through Pines Bridge, two miles above dam	Privy	25	No vault; barn and privy on open drain running towards lake. East bank
" 25	389	Small tributary from south, through Pines Bridge, two miles above dam	Store	*	Rubbish thrown out; premises dirty; directly over brook. Brook runs underground. During spring freshets, these are overflowed.
" 25	390	Croton Lake, south shore, at Pines Bridge	Dwelling	60	Slops thrown out.
" 25	391	Croton Lake, south shore, at Pines Bridge, Croton Lake Hotel	Cesspool	100	Hole, filled with loose stone; receives kitchen and wash-basin drainage.
" 25	391	Croton Lake, south shore, at Pines Bridge, Croton Lake Hotel	Privy	125	Wooden box vault.
" 25	391	Croton Lake, south shore, at Pines Bridge	Poultry-house	125	
" 25	391	Croton Lake, south shore, at Pines Bridge	Barn	150	
" 25	391	Croton Lake, south shore, at Pines Bridge.	Manure pit	150	Open drain runs from barnyard to roadway, thirty-five feet from lake.
" 25	392	Croton Lake, south shore, two and seven-eighths miles above dam	Privy	175	Loose stone vault; unused; premises unoccupied.
" 22	393	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle	Cemetery	100	Measurement made from edge of former pond (Kirby's pond) now drained. West bank.
" 22	394	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle	Dwelling	55	Slops thrown out measurement made from west bank of open drain, now dry, connecting with brook.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 22	394	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Privy	75	Loose stone vault; measurement made from west bank of open drain, now dry, connecting with brook.
" 22	394	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Poultry yard ..	90	Measurement made from west bank of open drain, now dry, connecting with brook.
" 22	395	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Barn	40	East bank.
" 22	395	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Manure heap..	40	"
" 22	396	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Privy	15	Loose stone vault. West bank.
" 22	396	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Dwelling	70	Slops thrown out. West bank.
" 22	397	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	"	60	Unoccupied. West bank.
" 22	397	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Privy	10	Loose stone vault, unused. West bank.
" 22	398	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Dwelling	30	Slops and garbage thrown into brook. West bank.
" 22	398	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Privy	10	Loose stone vault. West bank.
" 22	398	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Poultry yard...	5	West bank.
" 22	399	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Privy	5	No vault. West bank.
" 22	399	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Barn	*	Garbage and refuse thrown into brook. West bank.
" 22	399	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Liquor store...	50	Slops thrown out. West bank.
" 22	400	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Dwelling	25	Unoccupied. East bank.
" 22	400	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Privy	10	Loose stone vault, unused. East bank.
" 22	401	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	"	175	Loose stone vault. West bank.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 22	401	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle	Dwelling	100	Slops thrown out. West bank.
" 22	402	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle	Trhee dwellings	70	Now unoccupied; summer residences; on south bank of pond formed by brook.
" 22	402	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle	Privy	50	Loose stone vault, now unused; on south bank of pond formed by brook.
" 22	403	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Newcastle.....	Cemetery	150	"Oakview Cemetery:" measurement made from nearest grave to marsh, drained by brook which flows around southern end of cemetery; soil sandy and porous; in constant use as a place of burial.
" 22	404	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Privy.....	100	No vault. North bank.
" 22	404	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Dwelling	120	Slops thrown out. North bank.
" 22	404	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passsing through Mount Kisco..... ...	Poultry-house .	60	North bank.
" 22	405	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Privy.....	10	Uncemented earth vault. North bank.
" 22	405	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Dwelling †.....	*	Slops and garbage thrown into brook. North bank.
" 22	406	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	" †.....	*	Slops and garbage thrown into brook. North bank. Premises filthy.
" 22	406	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Privy †.....	*	Wooden box vault, overflowing and very filthy; premises filthy. North Bank.
" 22	407	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Dwelling †.....	*	Slops and garbage thrown into brook; premises filthy. North bank.
" 22	407	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Privy †.....	20	Wooden box vault, full and very filthy; premises filthy. North bank.
" 22	407	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Poultry-house .	10	North bank.
" 22	408	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Dwelling	40	Slops thrown out. South bank.
" 22	408	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Barn	60	South bank.

† These premises are overflowed during spring freshets. In 1891 water was eighteen inches above the banks and washed out contents of privies, etc.

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 22	408	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Privy	75	Box vault, full and filthy. South bank.
" 22	408	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Poultry yard ..	85	South bank.
" 22	409	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Blacksmith shop	30	"
" 22	410	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Dwelling	*	Slops and garbage thrown into brook. North bank.
" 22	410	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.	Two privies....	40	Uncemented earth vaults. North bank.
" 22	410	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	" ...	60	Uncemented earth vaults. North bank.
" 22	411	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Four garbage heaps.....	35	North bank.
" 22	412	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Pig-pen.....	15	Filthy; garbage thrown alongside and into brook. South bank.
" 22	413	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	"	60	Very filthy. North bank.
" 22	413	Kisco brook, large tributary from south, enters lake three miles above dam. Branch passing through Mount Kisco.....	Poultry-house..	60	North bank.
" 22	414	Marsh, south of Kisco brook, in Mount Kisco; no drains in same, connecting directly with brook...	Pig-pen.....	*	Garbage and manure alongside. East edge.
" 22	414	Marsh, south of Kisco brook, in Mount Kisco; no drains in same, connecting directly with brook...	Manure heap...	*	East edge.
" 22	414	Marsh, south of Kisco brook, in Mount Kisco; no drains in same, connecting directly with brook...	Barn	*	"
" 22	414	Marsh, south of Kisco brook, in Mount Kisco; no drains in same, connecting directly with brook...	Privy.....	25	Wooden box vault. East edge.
" 22	415	Marsh, south of Kisco brook, in Mount Kisco; no drains in same, connecting directly with brook...	"	*	Wooden box vault, nearly full. East edge.
" 22	416	Marsh, south of Kisco brook, in Mount Kisco; no drains in same, connecting directly with brook...	"	*	Wooden box vault. East edge. Slops and garbage thrown into marsh.
" 22	417	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook.....	Barn	*	
" 22	417	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook.....	Pig-pen.....	*	Excrement oozing directly into ram.
" 22	417	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook.....	Manure heap..	10	

Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 22	418	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Large barn.....	*	
" 22	418	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Two privies....	*	No vaults.
" 22	419	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Pig-pen.....	*	
" 22	419	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy.....	*	Wooden box vault; garbage scattered about.
" 22	420	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Horse shed....	10	Manure in same.
" 22	420	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy.....	60	No vault.
" 22	421	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Large cattle yard.....	*	Bounded by drain on two sides; bones, garbage and manure in yard.
" 22	421	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Slaughter-house	60	In corner of above yard. Very clean, blood and offal removed in tight receptacles daily.
" 22	421	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Poultry-house.	40	In corner of above yard.
" 22	422	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Pig-pen.....	30	In corner of above yard. Extremely filthy.
" 22	422	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy.....	30	In corner of above yard. No vault.
" 23	423	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Large barn....	100	
" 23	424	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Barn	60	
" 23	424	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Manure heap ..	60	
" 23	425	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Large barn	*	..... In large yard, bounded on three sides by drains.
" 23	425	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Manure heap ..	*	.....
" 23	425	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy.....	15	Wooden box vault
" 23	425	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Poultry yard...	25	.....
" 23	425	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Dwelling	50	Slops thrown out; garbage thrown into drain.
" 23	426	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	"	40	Slops thrown out.
" 23	426	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	30	Loose stone vault.
" 23	427	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	"	10	School-house privy (boys'); urinal in same discharges into drain; wooden box vault.

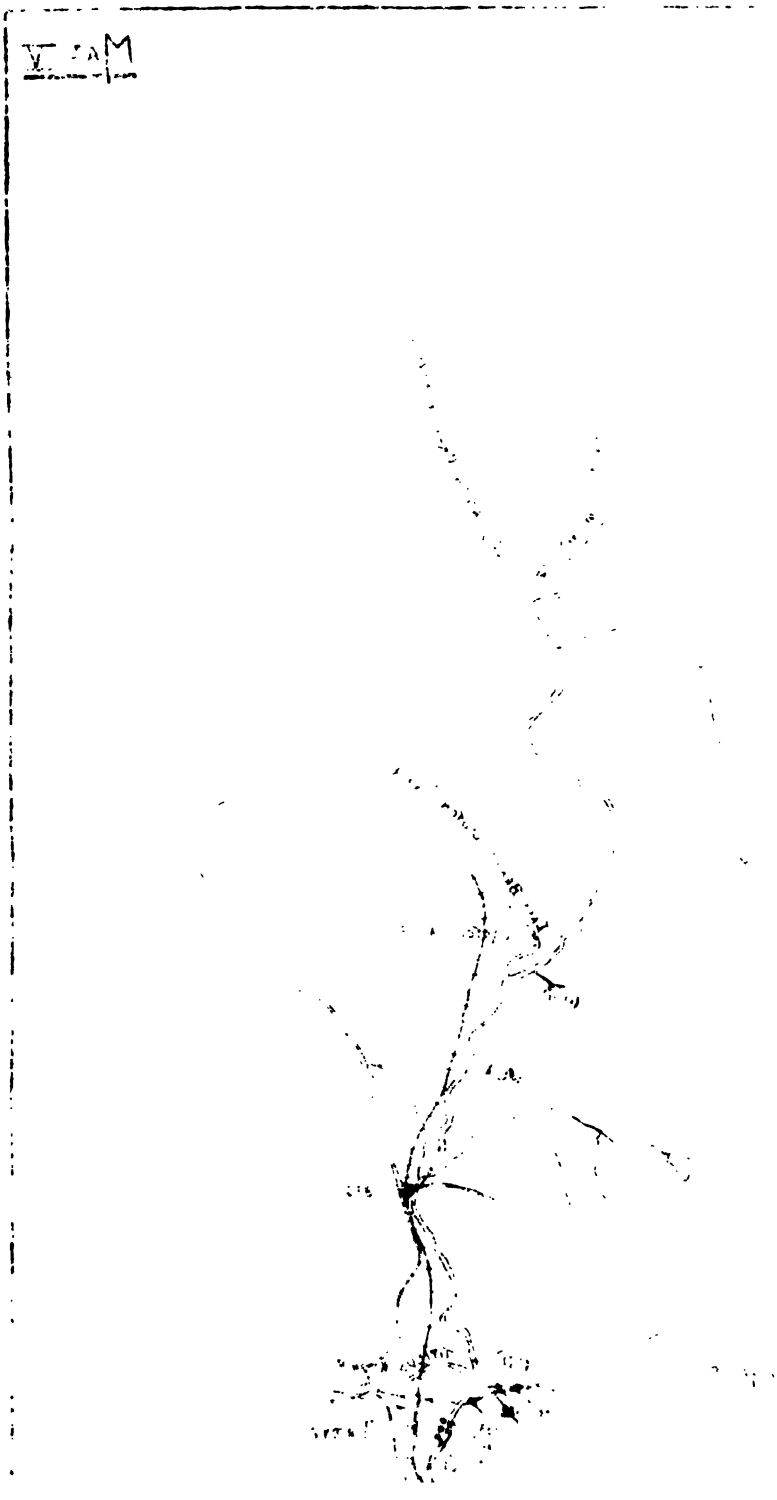
Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 23	427	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	*	School-house privy (girls'); wooden box vault.
" 23	428	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Barn	50	
" 23	428	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	"	*	
" 23	429	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	50	Loose stone vault
" 23	430	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Barn	50	
" 23	431	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Poultry yard	*	
" 23	431	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	*	Wooden box vault.
" 23	431	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Barn	25	
" 23	431	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Manure heap	10	
" 23	432	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	*	Wooden box vault.
" 23	433	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Poultry yard	*	
" 23	433	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Dwelling	75	Slops thrown out.
" 23	433	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	35	Wooden box vault, broken.
" 23	434	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	"	70	Loose stone vault.
" 23	435	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Barn	*	Premises in general extremely filthy.
" 23	435	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Manure and garbage heap	*	Very large heap
" 23	435	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Barn	*	
" 23	435	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Dwelling	*	Slops thrown out
" 23	435	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	60	Wooden box vault
" 23	435	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Manure heap	40	Filthy
" 23	436	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Dwelling	30	Slops thrown out.
" 23	436	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	60	Wooden box vault.

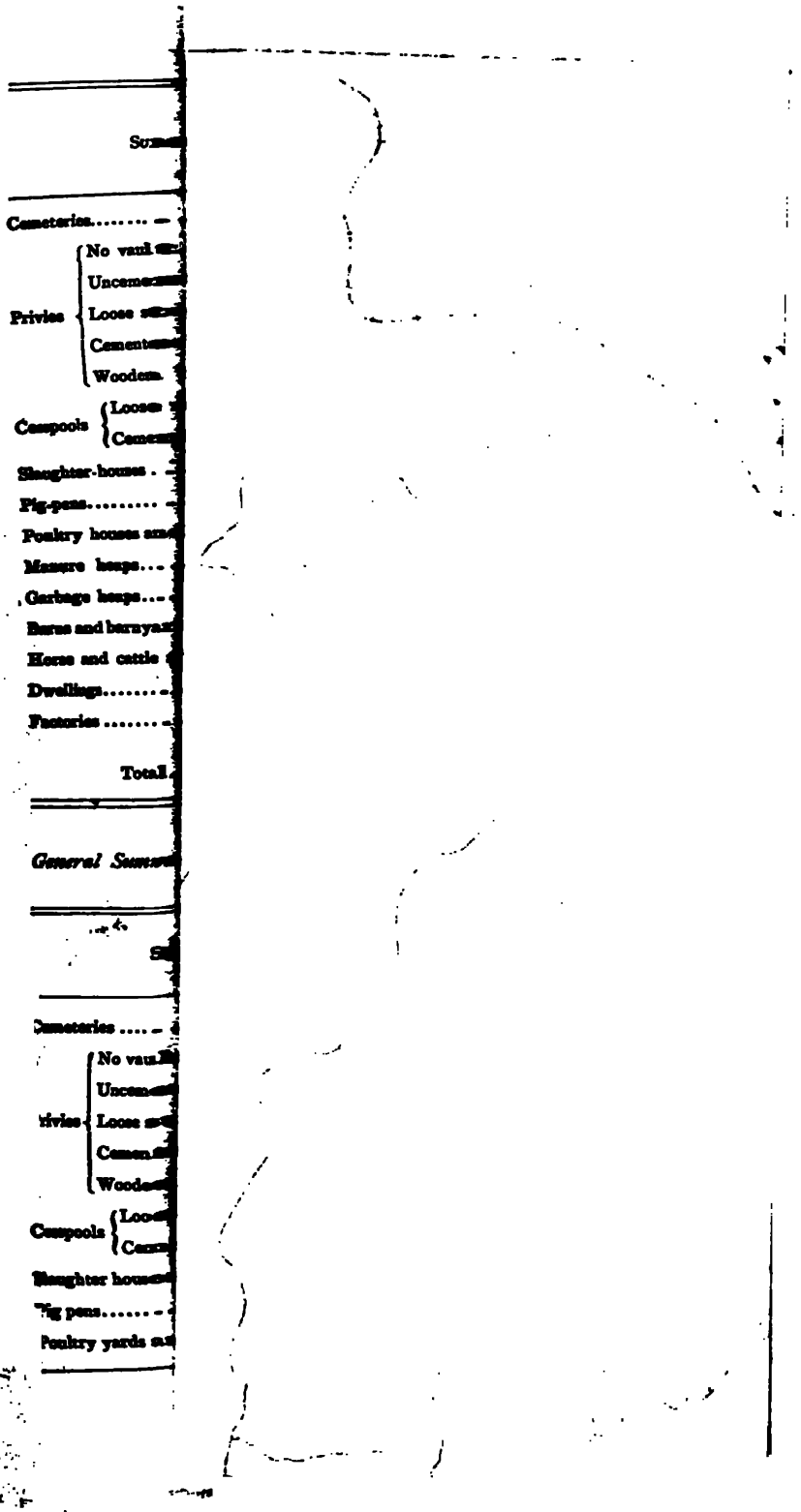
Date of Inspection.	Map No.	Location.	Source of Probable Contamination.	Distance from Water's Edge, in Feet.	Remarks.
Sept. 23	436	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Barn	60	On dry drain connecting with main drain.
" 23	436	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Manure heap	60	
" 23	437	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Poultry-house	*	
" 23	437	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Pig-pen	30	
" 23	437	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	60	Wooden box vault.
" 23	437	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Dwelling	80	Slops thrown out.
" 23	438	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Privy	60	Wooden box vault.
" 23	438	Open drains, north of Kisco brook, in Mount Kisco; connect directly with brook	Dwelling	25	Slops and garbage thrown into drain; same filthy.
" 23	439	Open drain, south of Kisco brook, in Mount Kisco; connects directly with brook	Barn	50	
" 23	439	Open drain, south of Kisco brook, in Mount Kisco; connects directly with brook	Dwelling	30	Slops thrown out.
" 23	439	Open drain, south of Kisco brook, in Mount Kisco; connects directly with brook	Privy	60	Wooden box vault.
" 23	440	Open drain, north of Kisco brook, in Mount Kisco; connects directly with brook	Dwelling	20	Slops thrown out.
" 23	440	Open drain, north of Kisco brook, in Mount Kisco; connects directly with brook	Privy	20	Tight wooden box vault.
" 23	441	Kisco brook, branch passing through Mount Kisco	Barn	*	Unoccupied. North bank.
" 23	442	Kisco brook, branch passing through Mount Kisco	Dwelling	10	" "
" 23	442	Kisco brook, branch passing through Mount Kisco	Privy	10	Uncemented earth vault, unused. North bank.
" 23	443	Kisco brook, branch passing through Mount Kisco	Dwelling	30	Slops and garbage thrown into brook. South bank.
" 23	443	Kisco brook, branch passing through Mount Kisco	Privy	40	Uncemented earth vault. South bank.
" 23	444	Kisco brook, near junction with Croton Lake	Dwelling	50	Slops thrown out. North bank.
" 23	444	Kisco brook, near junction with Croton Lake	Garbage heap	25	Offensive. North bank.
" 23	444	Kisco brook, near junction with Croton Lake	Privy	175	Loose stone vault. North bank.

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries		..	..	..	1	1	..	..	2	
Privies	No vault	2	2	2	2	..	..	..	8	59
	Uncemented earth vault	..	2	3	2	..	1	..	8	
	Loose stone vault	..	7	3	3	2	5	..	20	
	Cemented stone vault	..	..	..	..	..	..	..	..	
	Wooden box vault	7	5	3	7	1	..	..	23	
Cesspools	Loose stone vault	..	..	..	3	..	..	..	3	4
	Cemented stone vault	..	..	1	..	..	..	..	1	
Slaughter-houses		..	..	..	1	..	..	..	1	
Pig-pens		3	2	3	1	1	1	..	11	
Poultry houses and yards		4	3	1	6	2	..	..	16	
Manure heaps		5	3	2	3	1	1	..	15	
Garbage heaps		1	2	5	..	..	..	..	8	
Barns and barnyards		12	5	5	7	1	2	..	32	
Horse and cattle sheds		..	1	..	..	..	..	..	1	
Dwellings		7	5	10	13	1	2	..	38	
Factories		..	..	4	4	1	..	..	9	
Total		41	37	42	53	11	12	..	196	

General Summary—Sources of Probable Contamination on that Portion of the Croton Watershed covered by Inspection.

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries		..	..	..	1	1	2	..	4	
Privies	No vault	15	10	3	4	2	..	..	34	303
	Uncemented earth vault	10	16	18	26	8	2	2	82	
	Loose stone vault	7	25	19	27	9	6	1	94	
	Cemented stone vault	8	11	13	13	..	..	..	45	
	Wooden box vault	12	10	12	10	3	1	..	48	
Cesspools	Loose stone vaults	..	2	4	6	1	6	..	19	26
	Cemented stone vault	1	1	3	2	..	..	..	7	
Slaughter houses		..	3	..	1	..	..	..	4	
Pig pens		10	8	18	9	3	2	1	51	
Poultry yards and houses		29	20	19	21	8	2	1	100	

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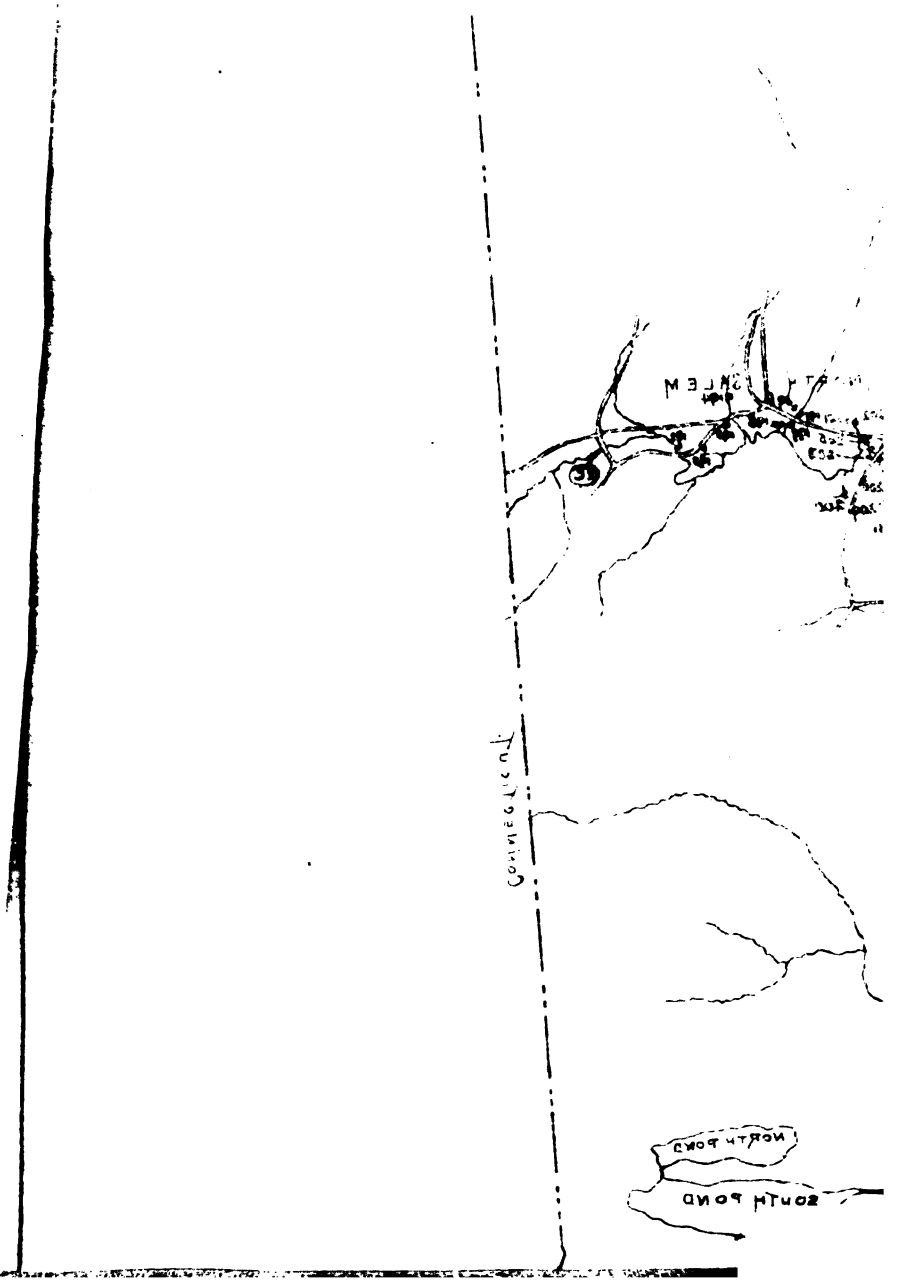
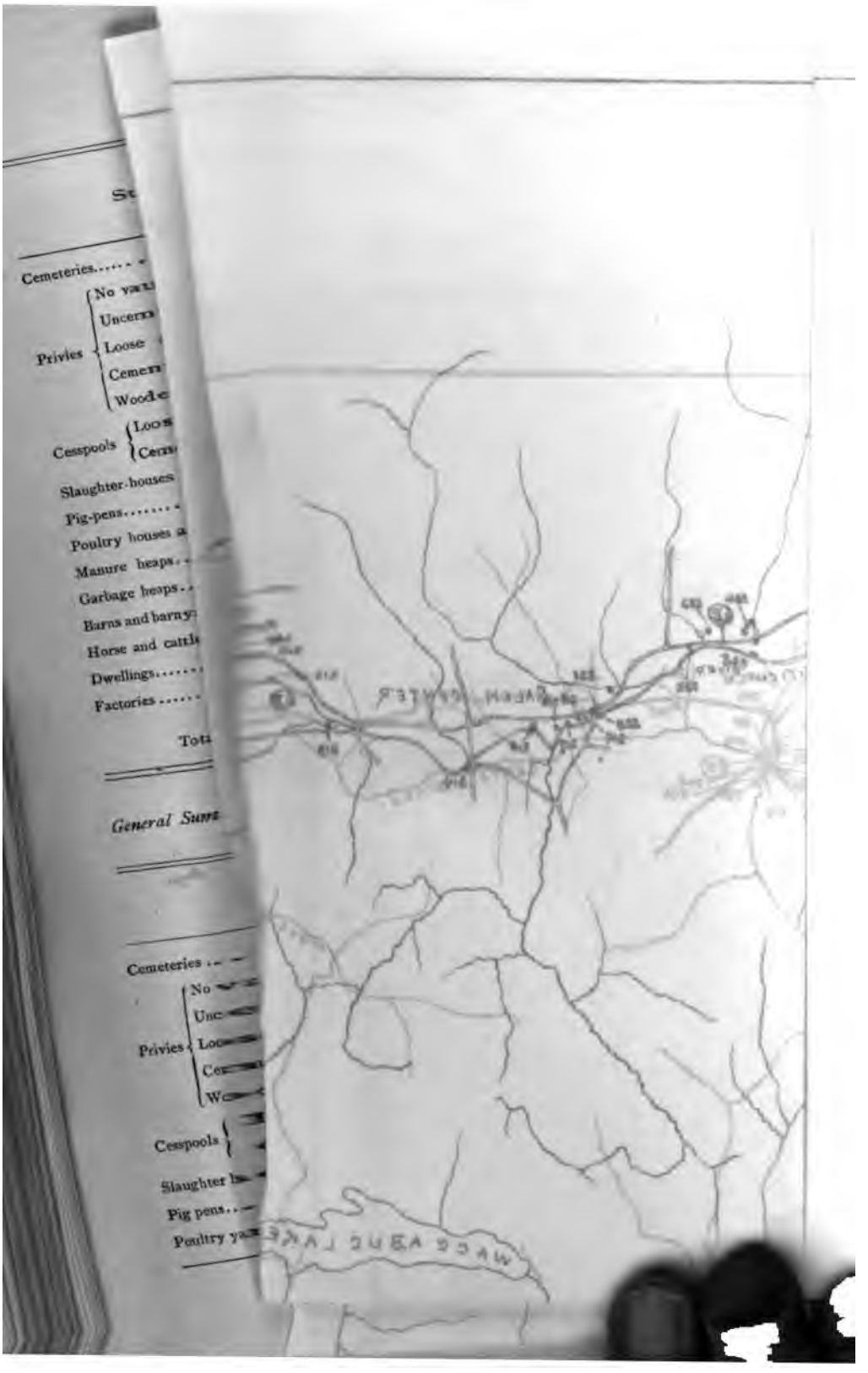
MAP III




Cemeteries
Privies
Cesspools
Slaughter-houses
Pig-pens
Poultry houses
Manure heaps
Garbage heaps
Barns and barnyards
Horse and cattle
Dwellings
Factories
Total
General Summary
Cemeteries
Privies
Cesspools
Slaughter houses
Pig pens
Poultry yards

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries		..	..	..	1	1	..	..		2
Privies	No vault	2	2	2	2	..	1 ..	..	8	
	Uncemented earth vault	..	2	3	2	..	1	..	8	
	Loose stone vault	..	7	3	3	2	5	..	20	59
	Cemented stone vault	..	..	..	..	..	..	..	..	
	Wooden box vault	7	5	3	7	1	..	..	93	
Cesspools	Loose stone vault	..	..	..	3	..	..	..	3	4
	Cemented stone vault	..	..	1	..	..	..	..	1	
Slaughter-houses		..	..	..	1	..	..	..		1
Pig-pens		3	2	3	1	1	1	..		11
Poultry houses and yards		4	3	1	6	2	..	..		16
Manure heaps		5	3	2	3	1	1	..		15
Garbage heaps		1	2	5	..	..	..	..		8
Barns and barnyards		12	5	5	7	1	2	..		32
Horse and cattle sheds		..	1	..	..	..	..	..		1
Dwellings		7	5	10	13	1	2	..		38
Factories		..	..	4	4	1	..	..		9
Total		41	37	42	53	11	12	..		196

General Summary—Sources of Probable Contamination on that Portion of the Croton Watershed covered by Inspection.

Summary.		On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.	
Cemeteries		..	..	..	1	1	2	..		4
Privies	No vault	15	10	3	4	2	..	..	34	
	Uncemented earth vault	10	16	18	26	8	2	2	82	
	Loose stone vault	7	25	19	27	9	6	1	94	303
	Cemented stone vault	8	11	13	13	..	..	..	45	
	Wooden box vault	12	10	12	10	3	1	..	48	
Cesspools	Loose stone vaults	..	2	4	6	1	6	..	19	26
	Cemented stone vault	1	1	3	2	..	..	..	7	
Slaughter houses		..	3	..	1	..	..	..		4
Pig pens		10	8	18	9	3	2	1		51
Poultry yards and houses		29	20	19	21	8	2	1		100

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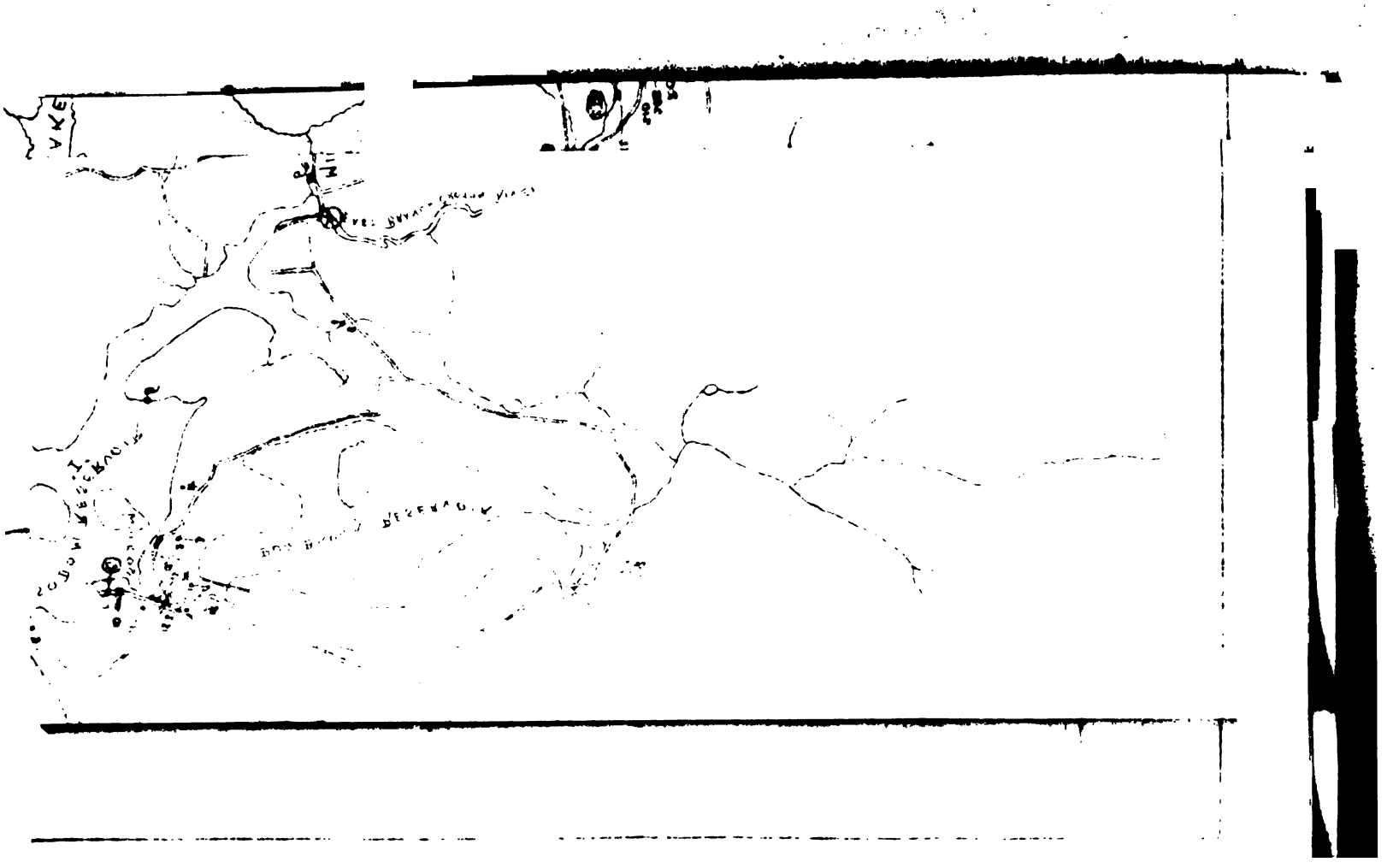


Summary.	On Water's Edge.	Within 25 Feet.	25 to 50 Feet.	50 to 100 Feet.	100 to 150 Feet.	150 to 250 Feet.	Over 250 Feet.	Total.
heaps	15	18	21	26	9	1	1	91
e heaps	29	7	10	5	2	..	..	53
and barnyards	50	24	33	43	16	5	4	175
and cattle sheds	2	5	4	..	1	..	..	12
llings	55	31	46	52	8	5	1	198
ories	13	1	4	4	1	..	..	23
Total	256	192	227	250	72	32	11	1,040

CHEMICAL ANALYSES AND INTERPRETATION OF RESULTS.

To determine whether a water is or is not contaminated with sewage or with organic matter f vegetable origin, it is necessary first to determine what were the probable amounts of its various onstituents, both organic and mineral, in an unpolluted condition.

Water *per se* is a chemical combination of oxygen and hydrogen; but falling upon the earth n the form of rain, it takes up varying amounts of organic and mineral matter from the air and from he soil, and these amounts are dependent upon the locality.

Near the ocean, we find that the amount of chlorides contained in rain is largely in excess over hat at some point farther inland. In the same way the amount of organic matter in the rain is nuch greater near large cities than in less densely populated regions. For instance, the rain in nland towns in Scotland and England averages 0.36 parts of chlorine in 100,000, while that on he sea coast averages 3 parts. After the rain falls upon the surface of the earth, it takes up oluble material, both mineral and organic, with which it may come in contact; so that the amounts f these substances will, of course, vary largely with the locality, depending upon the geological ormation and the character of the soil over or through which the water passes.

Although this variation is great, investigation has nevertheless proved that for a given locality here are certain limits to the mineral and organic matter in an uncontaminated water; and while o absolute rule can be laid down, yet knowing the locality, very close deductions can be made as o the purity of the water in question.

It must be remembered, however, that the relation of organic to mineral matter is close, the ne passing into the other through the action of the natural ferments contained in the soil and the xydizing action of the air. Again, a water may contain a certain amount of organic matter of vege- able origin and be harmless, while the same amount, due to animal sources, might be dangerous. n interpreting the results of an analysis, therefore, we must endeavor to distinguish between hese two possible sources of contamination.

Organic matter and a portion of the mineral matter, as found in water, are derived from two sources: first, from the excreta of living animals or the products of the decomposition of their dead bodies; and second, from the result of the decay of plant life. If we take sewage as the type of the first source (viz., animal), it is found to contain: (a) mineral matter, such

as phosphates, chlorides, etc.; and (b) organic matter, consisting largely of substances containing nitrogen in some form. These nitrogenous compounds, by the action of heat, light and bacteria, give up their nitrogen in the form of ammonia. Some of these compounds, as urea, decompose rapidly with the formation of ammonia. The strong ammoniacal odor noticed in urinals and stables is an illustration of this. Others, as albumen, decompose less readily. On the other hand, if water containing organic matter percolates through the soil, all of the nitrogenous compounds may, if the distance be sufficient and the nitrifying ferment present, be converted into nitric acid, and this, uniting with alkaline and earthy bases contained in the soil, forms nitrates. In contaminated waters the intermediate step, that of the presence of nitrites, is sometimes detected.

In water contaminated by *vegetable* matter, we find that the mineral constituents contained are due probably more to the geological formation than to the plants themselves. While such organic matter contains substances giving rise to nitrogenous compounds, as in animal matter, the amount so produced is very much less, in proportion to the quantity of organic matter present, and decomposition proceeds more slowly.

In this report the term "sewage" is used to include the waste or decomposition of animal life in whatever form, and waters are spoken of as "contaminated" or "polluted" when they have received increments of "sewage" as defined above. Vegetable contamination is not included in the use of the above terms.

It is the aim of chemists to determine in water the amounts of the organic constituents containing nitrogen, together with certain of the mineral matters, and, if possible, to determine the sources in water, whether animal or vegetable, from which they are derived.

In this country, Chandler, Waller, Drown, Mallet and others base their opinions, so far as the chemical analysis is concerned, upon the following determinations, viz.: appearance, color, odor at 100° Fahr., and the amounts of chlorides, phosphates, nitrogen in nitrites, nitrogen in nitrates, free and albuminoid ammonia, hardness equivalent to carbonate of lime, before and after boiling, organic and volatile matter (viz.: the loss on ignition), mineral matter and the total solid matter obtained by evaporation. It is well to state that these substances, with the possible exception of the mineral matter, are not in themselves harmful in the amounts in which they are found in natural waters; but only indicate, within certain limits, whether or not the water is contaminated. The mineral matters might be so large in amount that the water would be unfit for use; but in this case their presence would be due to the geological formation, or the soil, and not to contamination.

It has been thought well to describe in the fullest detail the methods of analysis employed by us in estimating the relative amounts of the constituents mentioned above, for the reason that in some cases small variations in the methods give rise to considerable differences in results, and that there is some divergence in the methods employed by different chemists.

Methods of Analysis.

Appearance.—Determined by noting the amount of turbidity, including the sediment, and classifying as very turbid, turbid, somewhat turbid, slightly turbid, and clear.

Color.—Estimated by filling a tube two feet in length, one and one-half inches in diameter, and made of colorless glass, with the water, and observing the color by looking through the water either at the sky or at white paper.

Odor.—Ascertained by heating in a closely stoppered flask, provided with a thermometer, about 250 c. c. of the water to 100° Fahr., and noting the odor, which we classify as follows: None; faint; and musty, marshy or earthy, qualifying these latter as faint, decided and strong.

Chlorine.—Reagents required: Hydrochloric acid; nitrate of silver, crystallized; chromate of potassium; dry carbonate of sodium or chloride of sodium.

(a) Nitrate of silver n/20—Nitrate of silver, 8.5 grams; distilled water (free from organic matter) 1 litre.

(b) Chromate of potassium, 1 gram; distilled water, 100 c. c.

(c) Chloride of sodium, n/20. This solution is prepared—

1st. From carbonate of sodium—Heat in a platinum dish about 10 grams of carbonate of sodium to dull redness, stirring with a platinum rod; cool in desiccator, weigh out 2.9066 grams, dissolve in slight excess of hydrochloric acid, evaporate to dryness on water bath with repeated additions of water, until all of the uncombined acid is driven off, and dilute to 1 litre with distilled water.

1 c. c. contains { 0.001598 grams of chlorine.
0.002638 grams of chloride of sodium.

2d. From chloride of sodium—Heat in a platinum dish about 10 grams of pure chloride of sodium until crepitation ceases, constantly stirring with platinum rod. Transfer while hot to dry tube, cork tightly and cool. Weigh out 2.6376 grams and dilute to 1 litre with distilled water.

1 c. c. = { 0.001598 grams of chlorine.
0.002638 grams of chloride of sodium.

Standardize the n/20 nitrate of silver solution with the n/20 chloride of sodium solution, using two drops of the chromate of potassium solution as an indicator.

NOTE.—It has been found (Analyst, vol. xiv., page 123) that in order to obtain concordant results, the same bulk of liquid as employed in the standardization must be used when making the analysis; the same amount of the chromate of potassium solution must also be used in each case.

To determine the amount of chlorine in a water, measure out a quantity dependent on the amount of chlorine presumably present, and proceed as in standardization of the nitrate of silver solution, observing the precautions given for this, as to bulk of solution, etc. In evaporating a water low in chlorine, it is well to add a small amount (say 0.1 gram) of sodium carbonate to prevent loss of chlorine, and this should always be done if the water have an acid reaction.

Sodium Chloride.—This is calculated from the amount of chlorine, determined as above.

Phosphates.—Determined qualitatively in residue left from the determination of mineral matter, by dissolving the residue in a small quantity of conc. nitric acid, diluting slightly and filtering if necessary, transferring to a test tube, adding a few drops of solution of molydate of ammonia, and heating in water bath.

Nitrogen in Nitrites (Method of Leffmann and Beam).—Reagents required: Sulphanilic acid; napthylamine; acetic acid (glacial); nitrite of silver; chloride of sodium; distilled water free from nitrites and ammonia.

(a) Sulphanilic acid solution—Sulphanilic acid, 0.500 gms., dissolved in distilled water, 100 c. c.; then add acetic acid (glacial), 50 c. c.

(b) Acetate of napthylamine—Napthylamine, 0.100 gms., dissolved in distilled water, 140 c. c.; then add acetic acid (glacial), 60 c. c.

(c) Nitrite of sodium (strong solution)—Nitrite of silver, 0.275 gms., dissolved in distilled water, 250 c. c.; then add chloride of sodium, 0.105 gms., or enough to transform all nitrite of silver to chloride of silver and nitrite of sodium. Keep in black glass bottle away from light. 1 c. c. contains nitrous acid equivalent to 0.0001 gms. of nitrogen.

(d) Nitrite of sodium (standard solution)—Nitrite of sodium (strong solution), 1 c. c., distilled water, 500 c. c. 1 c. c. contains nitrous acid equivalent to 0.0000002 gms. of nitrogen.

To determine the nitrogen in nitrites in a water, measure from burette into 100 c. c. nessler tubes, ½, 1, 2, 3, 4 and 5 c. c., respectively, of the standard nitrite solution. Fill to 100 c. c. mark with distilled water free from nitrites. Fill another tube to 100 c. c. mark with the same water (this for blank test), and another to 100 c. c. mark with water to be tested. Add to each of these tubes 2 c. c. of the sulphanilic acid and 2 c. c. of the acetate of napthylamine solution. Mix contents of tubes by means of glass stirrer, allow to remain for twenty minutes, and then match colors. If tube containing blank test shows reaction for nitrites, fresh standard tubes must be made up and the analysis repeated.

Nitrogen in Nitrates (*Method of Gladstone and Tribe*).—Reagents required: Bichloride of mercury; iodide of potassium; caustic potash; distilled water; chloride of ammonium; oxalic acid (free from nitrogen compounds); distilled water (free from ammonia); zinc turnings; solution of sulphate of copper, 1 to 100.

(a) Nessler's solution—Iodide of potassium, 62.5 gms., dissolved in hot distilled water, 250 c. c., in 2-litre flask; keep hot in water bath, and add, with constant shaking, saturated solution of bichloride of mercury, a few c. c. at a time, until the precipitate formed does not redissolve; then add caustic potash, 200 grams, dissolved in distilled water, 500 c. c.; dilute to 1 litre and add 5 c. c. of bichloride of mercury, saturated solution; let precipitate settle before using. The Nessler's solution should give a distinct reaction with 0.25 c. c. of the standard chloride of ammonium solution.

(b) Chloride of ammonium (strong solution)—Chloride of ammonium (re-sublimed), 0.315 grams, dissolved in distilled water (free from ammonia), 1 litre. 1 c. c. contains 0.0001 grams of ammonia ($N H_3$). Test this by titrating a portion with the n/20 nitrate of silver solution. 1 c. c. should contain 0.0021 gms. of chlorine.

(c) Chloride of ammonium (standard solution)—Chloride of ammonium solution (strong), 5 c. c.; dilute with distilled water (free from ammonia) to 50 c. c. 1 c. c.=0.00001 gms. of ammonia ($N H_3$).

Oxalic acid.—Powder and put in glass-stoppered bottle.

Zinc turnings coated with copper.—Place in a casserole enough zinc turnings to nearly fill a 300 c. c. wide-mouthed glass-stoppered bottle; fill casserole with water, add a few c. c. of the sulphate of copper solution, stir with glass rod until the zinc turnings are evenly and lightly coated with copper, wash thoroughly until free from copper sulphate solution and loose fragments of copper, and transfer to wide-mouthed glass-stoppered bottle by means of glass rod.

To determine the nitrogen in nitrates in a water, wash zinc copper couple in bottle three times with the water to be examined; then fill bottle nearly full with the water. Add 0.25 gms. of the powdered oxalic acid, shake, place stopper loosely in bottle, cover with beaker and allow to remain until water becomes clear. Heating on water bath hastens reaction. Take out 25 c. c. and test for the presence of nitrites. If no nitrites are found all of the nitrogen contained in the water must have been reduced to ammonia, as nitrites is the intermediate step in the transformation of nitrogen as nitrates into ammonia. If no nitrites are found, take out a measured quantity of the water, make up to 50 c. c. in Nessler tube with water free from ammonia, and nesslerize as described in determination of ammonia. From the amount of ammonia thus obtained the amount of free ammonia found in the water must be subtracted, the remainder calculated to nitrogen, and the amount of nitrogen in nitrites found (if any) taken from this. The result will represent the amount of nitrogen contained in the nitrates.

NOTE.—Before using zinc copper couple, make blank test, on water free from nitrogenous compounds. Ammonia should not be found.

Free Ammonia.—Reagents required: Carbonate of sodium (saturated solution); Nessler's solution; chloride of ammonium solution (standard); distilled water (free from ammonia).

The analysis is conducted as follows: A retort of 2½ litres capacity is connected with a Liebig's condenser, interior bore of tube 1 inch, length 34 inches. The neck of the retort should project into condenser tube beyond exit tube of water used for cooling, and the connection made air-tight with washed rubber hose. Fill retort about half full of water, add 2 c. c. of the carbonate of sodium solution, and distill until 50 c. c. of the distillate shows no reaction for ammonia with Nessler's solution. Add 500 c. c. of the water under examination, and distill off in separate portions of 50 c. c. into Nessler tubes until the last 50 c. c. distilled off shows no reaction for ammonia. The ammonia is estimated by matching the color produced by Nessler's solution in the distillates with that produced by the solution in one of a series of standard tubes, which latter are prepared by measuring into Nessler tubes ¼, ½, 1, 2, 3 and 4 c. c. of the standard ammonium chloride solution, respectively, and filling to the 50 c. c. mark with distilled water free from ammonia. The tubes will then contain 0.0025, 0.0050, 0.01, 0.02, 0.03 and 0.04 milligrams of ammonia (NH_3) respectively. The analysis and comparison tubes should all be nesslerized at the same time, which is done by adding to each tube 2 c. c. of Nessler's solution, and mixing with glass stirrer. They should be allowed to stand at least five minutes before reading.

Albuminoid Ammonia.—Reagents required: Same as in determination of free ammonia, with the addition of permanganate of potassium; caustic potash.

Alkaline permanganate of potassium.—Permanganate of potassium, 8 grms., dissolved in distilled water (free from ammonia) 1 litre; add caustic potash, 200 grms., and boil in long-necked flask, to prevent much evaporation, for one hour; make up to 1 litre with distilled water (free from ammonia).

To determine the amount of albuminoid ammonia, proceed as in determination of free ammonia, with the exception of adding 50 c. c. of the alkaline permanganate solution, instead of 2 c. c. of carbonate of sodium solution. The result will be the total ammonia present. From this deduct the free ammonia as found; the result will be the amount of albuminoid ammonia.

In determining the amount of albuminoid ammonia in peaty waters, it appears in certain cases to be impossible to arrive at a point where no ammonia is given off. Drown * proposes to take off a certain number of distillates, say 6, and then stop. We, in practice, continue distillation until the last 50 c. c. taken shows less than 0.0025 milligrams of ammonia. We have suggested that 500 c. c. of water be used for each of the ammonia determinations. This is applicable to Croton, or to a water which apparently produces no reaction with Nessler's solution on 50 c. c. of the raw water. If the raw water shows say 0.01 milligrams or more of ammonia on 50 c. c., less than 500 c. c. should be taken for analysis; or if the water contains much ammonia, 200 c. c. can be taken and 300 c. c. distilled off. 50 c. c. of this can be nesslerized and the ammonia calculated to a litre.

The successive distillates, in the determination of both free and total ammonia, should exhibit a steady decrease in the amount of ammonia contained. If this is not the case, the analysis must be repeated.

Hardness, Equivalent to Carbonate of Lime, Before and After Boiling.—Reagents required: A neutral hard soap, containing not more than 12 per cent. of water; alcohol, 90 per cent.; calc spar (crystallized) free from alkalies and chlorides; hydrochloric acid, C. P.; distilled water.

(a) Soap solution (strong)—Soap, 10 grms., cut into small pieces, dissolve in 1 litre of 90 per cent. alcohol and filter.

(b) Soap solution (standard)—Soap solution (strong), 100 c. c. Add to this alcohol (90 per cent.), 33 c. c., and distilled water, 100 c. c. Shake gently, allow to stand until clear, and filter.

(c) Standard solution of calcium chloride—Calc spar, 1 gram, dissolved in small amount of hydrochloric acid; evaporate to dryness on water bath, with repeated additions of distilled water, until all uncombined acid is driven off. Dilute this to 1 litre with distilled water. 1 c. c. is equivalent to 0.001 grm. of calcium carbonate.

The soap solution is standardized as follows: 100 c. c. of distilled water is run into a glass-stoppered bottle of about 250 c. c. capacity. 5 c. c. of the calcium chloride solution is run in from a burette, and the soap solution added, not more than 0.25 c. c. at a time, shaking well after each addition, until the addition of the last 0.25 c. c. produces a permanent lather. The lather formed should remain on the surface of the liquid in the bottle for five minutes without breaking. Taking the amount given, 1 c. c. of the soap solution should be equivalent to about 0.0005 gms. of calcium carbonate. The amount of the calcium chloride solution used should be about equivalent to the amount of lime salts contained in the water to be examined.

Hardness Before Boiling.—100 c. c. of the water is measured into a bottle, and the analysis thereafter conducted as in standardization of soap solution.

Hardness After Boiling.—100 c. c. of the water and 100 c. c. of distilled water are measured into a 250 c. c. flask and boiled until the bulk is reduced to 100 c. c. This is filtered into a bottle, cooled, and the analysis thereafter conducted as in hardness before boiling.

NOTE.—If more than 15 c. c. of soap solution are required for a given water, a smaller quantity of the water should be used, making up to 100 c. c. with distilled water.

*Examination of water supplies, Report State Board of Health of Massachusetts, 1890.

Total Solids.—100 c. c. of the water are measured into a previously weighed platinum dish, and evaporated to dryness on the water bath. The dish is then transferred to the air bath, and heated for one-half hour at a temperature of 130° Fahr. The dish is then placed in a desiccator, cooled and weighed.

Organic and Volatile (Loss on Ignition) and Mineral Matter.—The contents of the dish are now heated to faint redness over a Bunsen burner, until the organic matter is driven off. The dish is then placed in a desiccator, cooled and weighed. The loss represents the organic and volatile matter, and the residue the mineral matter.

In waters containing a large proportion of carbonates, it will be necessary to restore the carbonic acid lost on ignition. This is done by moistening the residue left after ignition with distilled water charged with carbonic acid, reheating on the water bath and in the air bath, and weighing.

When on ignition no blackening takes place, unless the water contains but a trace of organic matter, the absence of blackening is a sure sign of the presence of nitrates in large amount. This, therefore, becomes a check on the determination of nitrates, for if the amount of nitrates found was low and yet no blackening took place, this would indicate that some error had occurred, and that the nitrates as found were in reality too low. The reverse of this is also true.

In the analysis of water as given, the vessel containing the sample of water is taken at once to a room from which all reagents containing ammonia or nitrogen compounds are excluded, and which is partitioned off from the main laboratory. Water analyses only are conducted in it. The determinations of the nitrogen in nitrites and nitrates, and also of free and albuminoid ammonia, are at once commenced, and not until then are the mineral determinations started.

Well Waters on New York Island.

It is well known that over a large portion of the island on which New York City is located, wells of varying depths may be driven or sunk, which will yield an abundant supply of colorless, clear and apparently pure water. The geological formation of New York Island is, however, such that water from wells on the island cannot with safety be used for domestic purposes. This statement will be made clear by a consideration of the strata underlying the city, and the geological changes which these have undergone. The underlying rock is of igneous origin, and the dip of the strata is so great, varying from 75° to 90°, that no impervious water-bearing stratum exists, beneath which water free from contamination can be found. When the upheaval of the rock took place, it was left in a series of elevations with corresponding depressions. Through subsequent glacial action, the elevations were ground down, and the depressions filled with the drift. If, therefore, a well is sunk over one of the areas of former depression, the water obtained can be only the surface water which has percolated through the ground over this area. A well sunk over one of the areas of former elevation will yield no water, save possibly a small amount which has percolated through crevices in the rock. It is evident that water derived from the surface of an area so thickly populated as that on which New York City is built, must be badly contaminated by the dirt of the streets, and the inevitable leakage of sewers, drain-pipes, etc. A very large number of analyses, made during a number of years, of the water from so-called "artesian" wells on New York Island, by Drs. Chandler and Waller of the Columbia School of Mines, and by ourselves, substantiates the

above. (See analyses of water from wells on New York Island; pages 174–5.) While water from these sources may present no evidence of contamination to the senses, analysis has invariably shown it to be grossly contaminated with the products of sewage decomposition, and unfit for domestic use. The water of the Croton water-shed, as conveyed by the Old and New Aqueducts to New York City, is, therefore, at present the only available supply for all domestic uses, and its preservation from contamination becomes of the first importance.

Constitution of Pure Surface Water.

In judging of the character of waters from their analysis, it is customary to divide them into classes, as follows:

1st. Rain water.
2d. Spring water.
3d. Upland surface water.
4th. Ground water.
5th. Shallow wells.
6th. Deep wells.

The water supplied to New York City from the Croton water-shed belongs to the third of these classes. We must, therefore, in interpreting the results of analysis of the samples taken at various points on the water-shed, be governed by a consideration of the normal constitution of an upland surface water, and in particular by the character of the surface waters on the Croton water-shed when free from sewage contamination. It is unfortunately a matter of extreme difficulty to establish with certainty a standard of purity for the class of waters under consideration, for the reason, first, that previous to the present investigation, analyses of surface waters, known to be pure and taken from various points on the Croton water-shed, have not been made; and second, that previous to and during our inspection a season of extreme drouth prevailed, drying up a large number of the smaller unpolluted streams, so that we were unable to obtain more than a limited number of samples from sources known to be unpolluted. As an offset to this, however, the absence of rain during our inspection was, as previously stated, of value in permitting the collection of samples, unaffected by dilution, and therefore more strictly comparable one with another.

Moreover, a knowledge of the geological formation and topography of the water-shed as previously outlined, together with a consideration of the constitution of unpolluted surface waters from similar localities elsewhere, provides us with tolerably accurate data for comparison and enables us to classify with a close approximation to the truth the larger number of the samples taken by us.

Considering the various constituents in order, as determined in an analysis such as previously described in this report, we find that the *appearance* (turbidity and sediment) of a surface water will vary greatly with the season of the year, and the amount and character of the vegetation growing in or near it. The normal slight turbidity and sediment of the waters on the Croton water-shed are mainly due to the debris of aquatic vegetation. In this connection, Waller* says: "A turbidity, after standing some time, indicates matter in a minute state of subdivision, which is, to say the least, undesirable, even though it may be innocuous."

* Report of sanitary examination of potable waters, New York State Board of Health, 1883.

The *color* of a surface water is by preference light bluish. On the Croton water-shed, the color of the water is normally light yellowish brown, owing to the existence on the shed of a number of swamps and peaty deposits, as previously described in this report.

A pure surface water should have at most a very faint *odor*. On the Croton water-shed, the swamps and peat deposits mentioned above impart to the water a marshy odor, more or less pronounced. According to Drown *, a musty odor is indicative of sewage contamination. It, of course, does not follow that the absence of such odor implies freedom from pollution.

The amount of *chlorine in chlorides* in an unpolluted surface water will vary greatly with the character of the rock over which the water flows, and its proximity to salt-water. On the Croton water-shed, the geological formation and the distance from salt water warrant us in assuming a very low normal chlorine, certainly not over 0.18 parts in 100,000; but we cannot be sure, for reasons previously given, that the normal chlorine may not fall considerably below this figure.

The *phosphates* in a surface water should normally be absent, and this is the case with the unpolluted waters of the Croton water-shed.

The presence of *nitrites* in a surface water is in all cases of much significance, as indicating, save under exceptional circumstances, a transition state of oxidation between organic nitrogen and nitrates, under the influence of a special ferment, the nitrifying bacterium. In some rare cases, it is probable that the presence of nitrites is due to a reduction of nitrates by a specific bacterium in the presence of large excess of organic matter†. Nitrites are almost invariably absent in a surface water uncontaminated by sewage, and when present, are found as faint traces only. It is safe to assert that in the unpolluted surface waters of the Croton water-shed, nitrites are absent. Their presence in a surface water is regarded as very strongly indicative of contamination by sewage ‡ and certainly indicates the presence of nitrogenous organic matter in a state of incomplete oxidation.

Nitrates in a water are the final product of the oxidation of organic nitrogen through the action of the nitrifying ferment. Their presence, even in large amount, when unaccompanied by appreciable amounts of free ammonia, albuminoid ammonia, and nitrites, while indicating "previous sewage contamination," did not, in the opinion of many chemists, carry proof of the dangerous character of the water. This opinion was based on the assumption that by complete oxidation of the organic nitrogen the dangerous character of a water was destroyed. This deduction is now, however, considered untenable, as there is no proof that oxidation of sewage necessarily implies the complete destruction of the germs contained in the same, which latter are at present considered to be the true source of danger in polluted waters. The amount of nitrates in unpolluted surface waters is small, and is due to oxidation of vegetable organic matter. In the unpolluted surface waters of the Croton water-shed a safe limit may be set at 0.02 parts in 100,000.

The *free ammonia* found in water is the first product of the oxidation of organic nitrogen. The term is in a sense misleading, as the ammonia does not exist in the water in the free state, but com-

* Examination of water supplies, Report State Board of Health of Massachusetts, 1890.

† Jordan & Richards, examination of water supplies, Report State Board of Health of Massachusetts, 1890, Vol. II.

‡ Waller, Drown, examination of water supplies, Report State Board of Health of Massachusetts, 1890, Vol. I. Mallet, Report to National Board of Health, May, 1882.

bined with chlorine or carbonic acid. "Saline ammonia" would be a better term. In streams known to be polluted by sewage the presence of free ammonia in considerable amount is indicative of recent contamination. According to Drown*, high free ammonia, nitrites and chlorine are complete proof of sewage contamination. In unpolluted surface waters, the free ammonia is, as a rule, small in amount, and is due to the primary decomposition of vegetable organic matter, which latter contains a relatively small proportion of organic nitrogen and decomposes very slowly. Under exceptional circumstances, however, an accumulation of the products of vegetable decay occurs, which results in the production of free ammonia in large amount. The unpolluted waters of the Croton water-shed contain but little free ammonia. The limit may be set at 0.003 parts in 100,000.

Albuminoid ammonia, so called, is obtained in analysis by the oxidation of the organic nitrogen contained in the water. It represents unoxidized nitrogenous organic matter, and is a marked constituent of sewage. In surface waters, exposed to light and air, the final products of the oxidation of organic matter, viz.: carbonates and nitrates, may be assimilated by the animal and vegetable life present in more or less abundance in such waters, and organic nitrogen in new forms be thus produced. Water in which the growth of aquatic vegetation, especially the lower forms, is active, may therefore show on analysis a quite considerable amount of albuminoid ammonia, due to dissolved vegetable organic matter. The organic nitrogen of vegetable matter is, however, as has been said, markedly permanent as compared with that derived from animal sources. The existence on the Croton water-shed of the swamps and peat deposits previously described, gives to many of its waters a considerable amount of dissolved vegetable matter, and albuminoid ammonia is consequently always found in these waters to some extent, even when they are unpolluted. The varying conditions of the streams, etc., in respect to the kind and amount of aquatic vegetation, make it extremely difficult to establish a limit for the albuminoid ammonia. Certainly, a limit of 0.015 parts per 100,000 will include all unpolluted waters. In many cases, the limit set is undoubtedly far too high.

Hardness before and after boiling, represents in a water analysis the approximate amounts of the lime and magnesia salts (carbonates, sulphates and chlorides) present in the water, expressed in terms of carbonate of lime. Sewage is always alkaline, and when present in a water reduces the amount of soap solution necessary to form a permanent lather in the tests for "hardness," thus increasing the ratio between the "hardness before boiling" and total solids. In all classes of water, a ratio of 1 to 4 between "hardness" and total solids, is considered as indicative of a large amount of alkaline and consequent sewage contamination, and a ratio of 1 to 3 is suspicious. In surface waters, these indications are seldom so pronounced as to be of value, except when pollution by sewage is very large. An excessively hard water is, of course, objectionable for domestic purposes. In normal surface waters, the temporary and permanent hardness are as a rule low, and nearly equal in amount, and this is true of the surface waters of the Croton water-shed. In these, the hardness averages about 4 parts in 100,000.

Organic and volatile matter (loss on ignition) represents approximately the total amount of organic matter present in the water. In waters containing high chlorine, especially when this is

* Loc. cit.

in combination with magnesia, the loss on ignition is misleading, as it represents both the organic matter and more or less decomposition of the mineral matter. In the normal surface waters of the Croton water-shed, the low chlorides and stable character of the mineral matter permit of a fairly accurate determination of the total organic matter by ignition. While in itself of secondary importance, in that it affords no information as to the character of the organic constituents, its estimation enables us to follow any increase or decrease in the total amount of organic matter present. In the unpolluted water of the Croton water-shed, the "organic and volatile" matter averages about 1.5 parts in 100,000. Considerable variations will occur, however, dependent on the season of the year, amount of rain-fall, etc.

Mineral matter, while undesirable when present in large amount in a water, is of but little importance as a means of judging of its quality, unless a large variation from normal conditions occurs. In normal surface waters, the mineral matter is, as a rule, low in amount, and the same is true of the unpolluted surface waters of the Croton water-shed, in which it averages about 4.5 parts in 100,000, varying with the time of year and rain-fall.

Total solids, the sum of the mineral and organic and volatile matter, serve as a check on the estimation of the other constituents in a water. What has been said with regard to mineral and organic matter applies equally to the total solids.

Total nitrogen, viz.: The sum of that present in nitrates, nitrites, free and albuminoid ammonia, when considered as a whole, is often of value in determining, by comparison of analyses made of the water at varying points along a stream, the amount of nitrogen absorbed by vegetable life. In making such comparisons, regard must be paid to the effect of dilution from tributaries and from subterranean sources of supply. In the unpolluted waters of the Croton water-shed a limit of 0.035 parts in 100,000 may be set for total nitrogen.

Collating the limits set for the unpolluted surface waters of the Croton water-shed, we find them to be:

	Parts per 100,000.
Appearance	Slightly turbid.
Color	Light yellowish brown.
Odor at 100 degrees Fahrenheit	Faint marshy.
Chlorine	0.18
Phosphates	None.
Nitrogen in Nitrites	None.
Nitrogen in Nitrates	0.020
Free Ammonia	0.003
Albuminoid Ammonia	0.015
Hardness Equivalent to Carbonate of Lime — Before boiling	4.00
Hardness Equivalent to Carbonate of Lime — After boiling	4.00
Organic and volatile (loss on ignition)	1.50
Mineral matter (non-volatile)	4.50
Total solids (by evaporation)	6.00
Total Nitrogen	0.035

It must be understood that the figures in the above table are not set as hard and fast limits. They are intended to afford an approximation to the maximum amount of the various constituents found in the unpolluted surface waters of the Croton water-shed, under the conditions of temperature, freedom from rain-fall and previous drouth, which existed at the time of our inspection. In comparing with them the results obtained in analyzing the various samples from the water-shed, all the results must be taken into consideration, together with the knowledge of sewage contamination obtained by actual inspection. In a few instances the analysis of water from a source known to be polluted shows a decrease from the limits set for a majority of the constituents; but in every case an interpretation of the analysis in the light afforded by inspection, shows the true character of the water.

Effect of Storage in Reservoirs.

In considering the conditions which may affect the character of a surface water intended for domestic use, we must take into account the effect produced by its storage in ponds or reservoirs, especially the latter. For our present purpose it is only necessary to consider the storage of water in deep or shallow reservoirs, as the ponds and lakes on the Croton water-shed furnish but a small percentage of the total water supply, and have never to our knowledge given serious trouble. Under the conditions which exist in shallow reservoirs, viz.: a comparatively thin layer of water in a practically stagnant condition, there is frequently during the summer months an abundant growth of the lower forms of vegetable life, sometimes in enormous quantity, which gives to the water an unpleasant taste and smell. The causes of this phenomenon are not thoroughly understood. Under conditions apparently the same, the particular algæ or other growth developed may be of an entirely different species in one reservoir as compared with another, or no abnormal growth whatever may take place. One fact, however, appears to be well established, viz.: that trouble is much more likely to occur in a reservoir, the sides and bottom of which have not been cleared of vegetable growth before flooding.* The above applies to deep reservoirs as well, except that the lack of circulation due to the depth of water results in an accumulation of foul water at the bottom of the reservoir, while that at the surface may be but little affected. Under such conditions the bottom water of the reservoir frequently becomes extremely foul; loaded with decomposing organic matter and charged with offensive gases. This was the state of affairs in Sodom Reservoir (I) at the time of our inspection (see page 92).

While with lapse of time the bottom and sides of a reservoir, not originally cleared of vegetable growth, will undoubtedly approximate more and more closely to the condition of those of a lake or pond, this change is frequently extremely slow. The trouble once begun in a reservoir, may continue for many years. Examples of this are the reservoir of Springfield, Mass., where the trouble has continued unabated for sixteen years†, and Middle Branch Reservoir (G) on the Croton water-shed, whose bottom water is still offensive after a lapse of twelve years (see page 99).

Self Purification of Streams.

There seems to be a great difference of opinion as to whether a stream will or will not purify itself. Chandler‡ maintains that rivers will purify themselves, by aeration, sedimen-

* Drown and Stearns, Examination of Water Supplies, Report State Board of Health of Massachusetts, 1890.

† Drown and Stearns, loc. cit.

‡ Report on waters of the Hudson river to Water Commissioners of City of Albany, January, 1885.

tation, etc., after flowing for a comparatively short distance from the source of pollution. On the other hand, the English Commission on Rivers Pollution* state that "when the sewage of towns or other polluting organic matter is discharged into running water, the suspended matters may be more or less perfectly removed by subsidence and filtration, but the foul organic matters in solution are very persistent. They oxidize very slowly and they are removed only to a slight extent by sand filtration. There is no river in the United Kingdom long enough to secure the oxidation and destruction of any sewage which may be discharged into it, even at its source." We give these two authorities as representing the probable extremes of opinion. Both theories have many followers. It is our opinion, not only from personal experience but from the general opinion of good authorities at the present time, such as Waller, Drown, and others, that streams do purify themselves, the purification depending of course upon the amount of pollution received, the character of the bed of the stream, the vegetable growth existing therein, and the distance from the source of pollution. A stream purifies itself by the following means:

1st. Subsidence and sedimentation.

2d. Removal of the nitrogenous organic matter by the action of plant life.

3d. Aeration by passing over falls or rapids, so that the water is more or less exposed to the action of the air.

4th. Dilution.

Purification by subsidence takes place even in rapidly flowing streams sooner than we should expect. Much of the sediment appears to be caught by the projecting rocks and stones in the river bed, and much falls naturally to the bottom, owing to its weight. This will continue until the bed of the stream becomes loaded with organic impurities. In an ordinary stream, this would appear to be a solution of the question of the removal of the contained turbidity, but, unfortunately, a stream rises and falls with the amount of rain in the region through which it passes, so that while during the dry season the stream might deposit nearly all of the matter in suspension, during a wet season not only would the matter in suspension be carried along with it, but that previously deposited would again be taken up and carried further down its course. We would thus arrive at a period when the bed of the stream would, from its source to its mouth, contain so great a deposit of organic matter as to practically prevent any further purification by this means. This was noticeable on the water-shed during our inspection. In certain of the streams, after a heavy shower, the water remained turbid for a long distance from its source or from turbid tributaries flowing into it.

The removal of organic nitrogenous matter by the action of plant life is universally acknowledged, the plants readily assimilating these compounds, when in the form of nitrates, nitrites and free ammonia; indeed, these constituents are necessary for the proper growth and life of plants. If, however, so much organic matter of this character is contained in the water as to be more than is necessary for the growth of the plant, this action will, of course, be limited. In other words, plants will take up a certain amount and no more. In the table of total nitrogen in

* Reports on the Pollution of Rivers, Vol. III., 1874.

the different streams (see chart IX.) this is well illustrated, the East Branch being so saturated with nitrogenous compounds that the plants cease to assimilate them. The amount of total nitrogen is therefore greater at the point where this branch joins the Croton river than at its source. On the other hand, in the West and Middle Branches and their tributaries, we find in general a decrease in total nitrogen along the course of the streams.

Purification by aeration is, of course, largely dependent upon the character of the river bed, the more readily oxidizable matter being transformed by the action of the air into nitrates, and some of the free ammonia possibly volatilized. This appears to be one of the most efficacious methods of self-purification. Huxley, in 1878, writes,* "It must, nevertheless, be borne in mind that by constant exposure of fresh surfaces of polluted water to the action of the atmosphere, which is accomplished in a running stream, the organic matter is oxidized, and may thus be eventually converted into products which are perfectly harmless; in other words, a river is competent to effect its own purification, unless overtaxed with pollution." Exactly what is the amount of over-pollution cannot be known. At all events, no authority at the present day will definitely state what amount of sewage is harmful and what harmless.

This brings us to the fourth means of purification, viz.: dilution. If many diseases are caused by specific germs, and if such germs may be and are found in sewage, the question at once arises, what is the amount of dilution necessary to render the water harmless. If we have X bacteria of disease in a stream at a certain point, and only 1-100 X bacteria at another point, is this water at this latter place 100 times less harmful than at the first place? During the year 1885, one of us (Mr. Martin) was sent with Dr. Cyrus Edson of this Department to investigate the cause of the epidemic of typhoid fever at Plymouth, Pa. One thousand cases occurred in a population of 30,000. The reservoir water had been contaminated with the discharges from a typhoid fever patient. At least 90 per cent. of those that had typhoid fever had drunk reservoir water and yet the percentage amount of the discharges from this single patient contaminating the water in the reservoir must have been infinitely small, the reservoir when full holding 10,000,000 gallons, and at the time containing 2,000,000 gallons. It would appear that the question of the efficacy of dilution in self-purification is still debatable ground, unless, perhaps, when enormously great, as, for instance, the dilution of the sewage of Troy by the waters of the Hudson river.†

Results of Analyses, and Discussion of the Same.

These results are uniformly stated in parts by weight in 100,000. Reference to the maps accompanying this report will show the location of the points where samples were taken. A series of charts have been prepared, showing graphically the variation in the amounts of chlorine and nitrogenous organic constituents for any given stream or reservoir from which samples were taken at various points. Another chart shows the variations in total nitrogen for all the streams and reservoirs in which samples were taken as above and affords a means of comparison between the amounts of nitrogenous organic matter relatively present in the main sources of supply.

In presenting these results we have deemed it unnecessary to enter into their extended discussion. What has previously been said as to interpretation of results affords, in connection with

* Quoted in Report of Chandler to Water Commissioners of Albany, 1885.

† Chandler, Report on waters of the Hudson river to Water Commissioners of City of Albany, 1885.

the data given, ample means for those interested in the matter to arrive at their own conclusions, both in specific cases, and in general as to the character of the waters of the Croton basin, and further elaborate discussions would, in our opinion, add nothing in the way of clearness and serve only to needlessly increase the bulk of this report. We have, therefore, stated as briefly as possible the deductions drawn by us from the combined indications of inspection and analysis.

In many instances the apparent discrepancy between the probable pollution of a watercourse, as determined by inspection, and the quality of the water as found by analysis, is explained by the exceptional drouth which existed prior to and during our inspection. Percolation of sewage through the soil and into watercourses would not take place under these conditions as it would under ordinary conditions of rain-fall.

TABLE I.—*Analyses of Samples from Sodom Reservoir and the East*

Map No.	Laboratory No.	Date when Sample was Taken.	Location.	Appearance.	Color.
A	6627	Sept. 1	East Branch, at Milltown bridge, northeast end of Sodom Reservoir (I)	Turbid	Light yellowish brown
B	6724	" 21	Peach Lake outlet at junction with Sodom Reservoir (I)	Somewhat turbid	Dark yellowish brown
C	6619	Aug. 27	Fountain, outlet of Sodom Reservoir (I)	Turbid	"
D	6620	" 27	East Branch, at Milk Factory Bridge	Very turbid	"
E	6599	" 19	Tonetta brook, at junction with East Branch	Slightly turbid	Greenish yellow
F	6621	" 27	East Branch, three hundred yards below Red bridge	Turbid	Light yellowish brown
G	6622	" 27	East Branch, one-eighth mile below Baxter's slaughter-house	"	"
H	6623	" 27	East Branch, at bridge one and one-eighth miles below Baxter's slaughter-house	Slightly turbid	Yellowish brown
I	6624	" 27	East Branch, at first dam	Very slightly turbid	"
			Average of above analyses		

(See also Map I. and Chart I.)

Analysis B is hardly comparable with the others, as the tributary was nearly dried up when the sample was taken. The water of Sodom Reservoir and the East Branch must be classed as of very poor quality and unfit for drinking. This is due to contamination of the main tributary to the reservoir, from sewage and decaying vegetation (the largest swamp on the water-shed is just above the reservoir, and is drained by the tributary), to accumulation of the products of organic decay in the water at the bottom of the reservoir, due to causes already explained (see page 92),

Branch of the Croton River, below the Reservoir, with their Tributaries.

Odor at 100° Fahr.	Chlorine in Chlorides.	Equivalent to Sodium Chloride.	Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by Evaporation).
									Before Boiling.	After Boiling.			
Faint marshy....	0.189	0.311	None.	0.0006	0.0241	Trace.	0.0120	0.0346	9.67	9.67	3.70	12.60	16.30
None	0.228	0.375	"	None.	0.0318	0.0015	0.0265	0.0548	5.00	5.00	2.50	6.50	9.00
Very offensive ..	0.172	0.283	"	"	0.0288	0.0450	0.0300	0.0898	6.17	5.80	2.20	7.80	10.00
Offensive.....	0.189	0.311	"	0.0001	0.0205	0.0450	0.0150	0.0701	6.12	5.64	2.20	8.30	10.50
Slightly stale.. .	3.770	6.220	"	0.0014	0.1509	0.0150	0.0150	0.1770	7.30	6.98	4.40	18.80	23.20
Strong woody...	0.197	0.325	"	0.0003	0.0409	0.0300	0.0150	0.0783	6.39	5.48	2.90	8.80	11.70
Very offensive ..	0.197	0.325	"	0.0006	0.0678	0.0075	0.0375	0.1056	6.23	5.42	3.50	8.50	12.00
Offensive	0.189	0.311	"	0.0014	0.0748	0.0075	0.0375	0.1139	6.44	5.64	3.20	8.30	11.50
"	0.189	0.311	"	0.0014	0.0869	0.0200	0.0250	0.1193	6.55	4.40	3.30	7.60	10.90
.....	0.591	0.964	None.	0.00064	0.0585	0.0191	0.0237	0.0937	6.65	6.00	3.10	9.69	12.79

to sewage contamination of the water in the reservoir and to the sources of pollution found along the East Branch. The main tributary to the river, Tonetta brook, is grossly polluted with sewage; at the time of our inspection it was nearly dry. Self-purification of the water in the East Branch is practically *nil*, for while some oxidation of organic nitrogen takes place, the total nitrogen is larger near the mouth of the river than at its source below the reservoir (see Chart IX.). No dilution by purer water has taken place, as is shown by the constancy of the amounts of chlorine and mineral matter.

TABLE II.—*Analyses of Samples from Middle Branch Reservoir (G) and th*

Map No.	Laboratory No.	Date when Sample was Taken.	Location.	Appearance.	Color.
J	6628	Sept. 1	Middle Branch, one-half mile above Reservoir G	Slightly turbid.....	Light yellowish brown...
K	6629	" 1	Reservoir G, at rip-rap of dam.....	"	Very light yellowish brow
L	6659	" 1	"Brimstone Hollow" brook, at junction with Middle Branch.....	Turbid	Yellowish brown.....
M	6630	" 1	Middle Branch, below junction of "Brimstone Hollow" brook	Somewhat turbid...	Light yellowish brown ...
N	6631	" 1	Middle Branch, at junction with West Branch.....	Very slightly turbid	Very light yellowish brow
			Average of above analyses.....		

(See also Map I. and Chart II.)

The water of the main tributary to the reservoir is of fair quality. That of the reservoir itsel is of poor quality. This is due mainly to accumulation of products of organic decay, as previously described (see page 99), and to some extent to sewage contamination.

The samples from the Middle Branch were taken at a time when no water was being drawn from the reservoir, and therefore practically represent the water of tributaries.

A sample (3B, which see *) was, however, taken below the junction of the West and Middle Branches at a time when 40,000,000 gallons daily were being drawn from the reservoir. The

* Page 168, this report.

Middle Branch of the Croton River, below the Reservoir, with their Tributaries.

Odor at 100° Fahr.	Chlorine in Chlorides.	Equivalent to Sodium Chloride.	Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by Evaporation).
									Before Boiling.	After Boiling.			
Faint marshy...	0.214	0.353	None.	None.	0.0082	Trace.	0.0180	0.0230	6.71	5.37	3.00	7.00	10.00
" ...	0.172	0.283	"	0.0001	0.0287	0.0450	0.0375	0.0967	3.22	2.67	3.30	3.30	6.60
" ...	0.245	0.404	"	None.	0.0140	0.0030	0.0120	0.0264	6.18	5.91	1.20	9.00	10.20
" ...	0.223	0.368	"	"	0.0329	Trace.	0.0160	0.0461	5.37	5.10	2.80	7.00	9.80
" ...	0.223	0.368	"	"	0.0082	"	0.0085	0.0152	5.10	4.83	1.30	8.30	9.60
.....	0.215	0.355	None.	0.00002	0.0184	0.0096	0.0184	0.0415	5.32	4.78	2.32	6.92	9.24

analysis of this sample, especially as to total nitrogen, coincides quite closely with that of the water in the reservoir, allowing for dilution by the purer water of the West Branch (30,000,000 gallons daily, †see Analysis 2B). There is, therefore, apparently little or no self-purification in the stream. Its water must be classed as of poor quality ; but it is fair to assume that this is due, more to the condition of the water in the reservoir, than to contamination below the latter, either directly or through tributaries. The water of "Brimstone Hollow" brook, the main tributary, is of fair quality. (Analysis L).

† Page 160, this report.

TABLE III.—*Analyses of Samples from Boyd's Corners Reservoir (E), the Wa*

Map No.	Laboratory No.	Date when Sample was Taken.	Location.	Appearance.	Color.
O	6635	Sept. 3	Tributary, northwest corner of Reservoir E.	Somewhat turbid...	Dark yellowish brown...
P	6636	" 3	Tributary, northeast corner of Reservoir E.	Turbid	Yellowish brown.....
Q	6637	" 3	Fountain, outlet of Reservoir E.....	Very slightly turbid	" .....
R	6642	" 4	West Branch, below junction of China Pond brook.....	"	Light yellowish brown..
S	6643	" 4	West Branch, below bridge at Cole's Mills ..	"	" ..
T	6647	" 4	At gate, outlet of Lake Gleneida.....	"	Very light yellowish brown .....
U	6644	" 4	Horse Pound brook, between junction of Lake Gleneida outlet and Pine Pond brook..	"	"
V	6645	" 4	Pine Pond brook, at junction with Horse Pound brook	"	Light yellowish brown ..
W	6646	" 4	West Branch, at bridge three-eighths mile below junction of Horse Pound brook..	"	" ...
X	6648	" 4	Long Pond brook, near junction with West Branch.....	Slightly turbid.....	" ...
Y	6649	" 4	West Branch, at temporary dam, below site of large dam for New Reservoir D..	"	" ...
Z	6651	" 4	West Branch, at bridge two miles below junction of Long Pond brook.....	"	Very light yellowish brown .....
aA	6650	" 4	At gate, outlet of Lake Gilead.....	Very slightly turbid	Light bluish.....
aB	6652	" 4	West Branch, at junction with Middle Branch	Slightly turbid.....	Light yellowish brown...
Average of above analyses.....					

(See also Map II. and Chart III.)

Of the two main tributaries to the reservoir (Samples O and P), one (Sample O) must be considered unsatisfactory on account of the abnormally high amount of nitrogen in nitrates, indicative of "previous sewage contamination." The other (Sample P) is fair in quality. The water in the reservoir is better in quality than that of either of its tributaries. No accumulation of decaying vegetable matter appears to exist in this reservoir. The water of the various tributaries to the West Branch is of fair quality, with the exception of the supply from Lake Gleneida. In this sample the great increase in the amount of chlorine (three times that found in Lake Gilead) and the presence of nitrites, is evidence of the large sewage contamination which the lake receives from the

Branch of the Croton River, and Lakes Gleneida and Gilead, with their Tributaries.

Odor at 100° Fahr.	Chlorine in Chlorides.	Equivalent to Sodium Chloride.	Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by Evaporation).
									Before Boiling.	After Boiling.			
Faint marshy.....	0.140	0.231	None.	None.	0.1647	Trace.	0.0120	0.1747	5.64	5.37	1.80	6.30	8.10
"	0.123	0.202	"	"	0.0412	"	0.0140	0.0527	3.76	3.49	1.80	3.70	5.50
"	0.140	0.231	"	0.0003	0.0195	0.0060	0.0150	0.0371	2.69	2.69	1.40	2.70	4.10
"	0.140	0.231	"	0.0008	0.0017	0.0070	0.0095	0.0161	2.74	2.69	2.50	3.40	5.90
"	0.140	0.231	"	0.0008	0.0236	0.0040	0.0155	0.0405	2.42	2.31	1.70	2.60	4.30
"	0.420	0.693	"	0.0001	0.0185	0.0075	0.0005	0.0251	3.87	3.76	1.40	4.80	6.20
"	0.175	0.288	"	None.	0.0305	0.0030	0.0060	0.0379	3.97	3.92	1.80	6.40	8.20
"	0.193	0.318	"	"	0.0025	0.0020	0.0190	0.0198	4.13	4.13	2.00	6.20	8.20
"	0.140	0.231	"	0.0003	0.0018	0.0075	0.0005	0.0086	3.22	3.22	0.90	3.30	4.20
"	0.210	0.346	"	None.	0.0185	0.0075	0.0040	0.0280	4.67	4.56	1.20	5.20	6.40
"	0.140	0.231	"	"	0.0276	0.0065	0.0005	0.0333	2.95	2.95	0.90	3.40	4.30
"	0.140	0.231	"	0.0001	0.0312	0.0020	0.0015	0.0341	3.22	2.95	0.40	4.00	4.40
Very faint marshy	0.158	0.260	"	None.	0.0231	0.0020	0.0010	0.0255	3.11	2.95	1.00	5.20	6.20
Faint marshy.....	0.140	0.231	"	"	0.0089	0.0015	0.0015	0.0113	3.92	3.76	0.90	4.00	4.90
.....	0.172	0.283	None.	0.00017	0.0295	0.0040	0.0072	0.0389	3.59	3.48	1.41	4.37	5.78

Town of Carmel. It must be remembered that no water was being drawn from the lake at the time of our inspection. The water of Lake Gilead (Analysis 2A) is of exceptionally good quality, and may be taken as the best example of an uncontaminated surface water found during our inspection. There is a marked improvement in the character of the water of the West Branch in its passage down the stream. At its junction with the Middle Branch, the water is apparently of good quality. It must, however, be remembered that many nuisances exist, especially on the tributaries, which on account of the long-continued drouth were not at the time of our inspection sources of contamination, but are liable to prove so under ordinary conditions of rain-fall.

TABLE IV.—*Analyses of*

Map No.	Laboratory No.	Date when Sample was Taken.	Location.	Appearance.	Color.
2C	6703	Sept 17	Titicus river, at bridge, one-fourth mile from Connecticut State Line	Somewhat turbid...	Light yellowish brown.....
2D	6704	" 17	Titicus river, between North Salem and Salem Centre	Clear	Very light yellowish brown.
2E	6705	" 17	Titicus river, below Salem Centre.....	Very slightly turbid	"
2F	6706	" 17	Titicus river, above temporary dam for new Reservoir M.....	"	"
2G	6707	" 17	Titicus river, at junction with Croton river	Very turbid.....	"
			Average of above analyses.....		

(See also Map III. and Chart IV.)

At the point where Sample 2C was taken, about one-fourth mile from the Connecticut State line, the water is of fair quality, and improves slightly during its passage down the river, until the Town of Purdy's is reached. The Sample 2G, taken below the town, shows by comparison with

Samples from the Titicus River.

Odor at 100° Fahr.	Chlorine in Chlorides.	Equivalent to Sodium Chloride.	Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by Evaporation).
									Before Boiling.	After Boiling.			
Faint marshy.....	0.184	0.303	None.	None.	0.0033	0.0010	0.0190	0.0197	6.18	5.91	1.20	9.80	11.00
"	0.245	0.404	"	"	0.0037	0.0005	0.0060	0.0090	8.06	6.98	0.40	14 80	15 20
"	0.237	0.390	"	"	0.0041	Trace.	0.0160	0.0173	8.75	7.52	0.50	12.00	12.50
"	0.245	0.404	"	"	0 0041	Trace.	0.0090	0.0115	8.06	7.25	0.50	10.00	10.50
"	0.438	0.722	"	"	0.0033	0.0010	0.0120	0.0149	8.06	7.25	0.40	10.00	10.40
.....	0.270	0.445	None.	None.	0.0037	0.0005	0.0164	0.0145	7.82	6.98	0.60	11.32	11.92

the other samples the pollution due to the sewage at Purdy's. At this point the river water is of poor quality, nor can it be doubted that under ordinary conditions it receives considerable pollution from the Towns of North Salem and Salem Centre, and from other points.

Map No.	Laboratory No.	Date when Sample was Taken.		APPEARANCE.	COLOR.
				Clear.....	Light yellowish brown.
				"	"
				"	"
2C	6703	Sept. 27	Titicus river, from Conn	"	"
2D	6704	" 27	Titicus river, b Salem Centre	"	"
2E	6705	" 27	Titicus river, below	Turbid	"
2F	6706	" 27	Titicus river, above new Reservoir N	"	"
2G	6707	" 27	Titicus river, at junction	"	"
				Clear.....	Very light yellowish brown
			Average of above analy	Somewhat turbid.	"
				Decidedly turbid...	"

(See ...

At the point where Sample 2C wa... line, the water is of fair quality, and improv... Town of Purdy's is reached. The Sample ...

...to the junction of Beaver Dam ...ality, however, takes place for ...of poor quality (see Analysis ...with the Croton river, below

River, and from Beaver Dam Brook.

Odor at 100° Fahr.	Chlorine in Chlorides.	Equivalent to Sodium Chloride.	Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by Evaporation).
									Before Boiling.	After Boiling.			
Faint marshy	0.210	0.346	None.	None.	0.0239	0.0010	0.0140	0.0362	3.76	3.76	0.90	5.00	5.90
Marshy.....	0.210	0.346	"	"	0.0025	0.0020	0.0170	0.0181	3.71	3.71	0.80	5.00	5.80
"	0.228	0.375	"	"	0.0045	0.0005	0.0105	0.0135	5.26	5.20	1.20	7.80	9.10
Faint marshy.....	0.228	0.375	"	"	0.0161	0.0005	0.0165	0.0301	4.46	4.46	1.00	7.50	8.50
"	0.228	0.375	"	"	0.0325	0.0005	0.0065	0.0383	5.26	5.26	1.00	6.50	7.50
Marshy.....	0.228	0.375	"	"	0.0325	0.0005	0.0095	0.0407	4.56	4.40	2.10	7.00	9.10
"	0.228	0.375	"	"	0.0078	0.0005	0.0065	0.0136	4.83	4.67	1.40	7.30	8.70
"	0.263	0.433	"	"	0.0490	0.0005	0.0070	0.0552	4.40	4.35	1.50	8.00	9.50
"	0.263	0.433	"	"	0.0490	0.0005	0.0050	0.0535	4.83	4.83	2.30	6.70	9.00
"	0.280	0.462	"	"	0.0490	0.0005	0.0085	0.0548	5.37	5.21	1.50	7.00	8.50
"	0.280	0.462	"	0.0001	0.0318	0.0010	0.0080	0.0392	5.53	5.21	1.00	7.40	8.40
.....	0.241	0.396	None.	0.00001	0.0271	0.0007	0.0097	0.0357	4.72	4.64	1.34	6.84	8.19

Katonah, it is, by comparison, very poor in quality. The influence of the sewage from Katonah, and **the conversion of the river into a shallow mill-pond** during its passage through the town, is marked. The **water of the Waccabuc river, a tributary to the** Cross river at Boutonville, is a good example of an **uncontaminated stream, draining a considerable swampy area (see Analysis 2J.).**

TABLE VI.—*Analyses of Samples from Lake Mahopac*

Map No.	Laboratory No.	Date when Sample was Taken.	LOCATION.	APPEARANCE.	COLOR.
2S	6655	Sept. 10	Mud Pond brook, at junction with Lake Mahopac	Slightly turbid.	Dark yellowish brown .
2T	6660	" 10	At gate, outlet of Lake Mahopac.....	"	Light yellowish brown
2U	6661	" 10	Outlet of Secor Lake, near junction with Muscoot river.....	"	"
2V	6662	" 10	Muscoot river three miles below Lake Mahopac, at bridge below large swamp.....	"	"
2W	6667	" 11	Muscoot river, at mill-pond dam two and one-half miles below Sample 2V.....	"	"
2X	6668	" 11	Muscoot river, at bridge opposite office of Chief Engineer, new Reservoir A.....	Clear.....	"
2Y	6669	" 11	Amawalk, brook at junction with Muscoot river..	Slightly turbid.	Yellowish brown.....
2Z	6670	" 11	Muscoot river, below settlement of the Society of Christian Brothers.....	"	Light yellowish brown
3A	6671	" 11	Muscoot river, at junction with Croton river.....	"	"
			Average of above analyses.....		

(See also Map IV. and Chart VI.)

The water of the only tributary to Lake Mahopac, Mud Pond brook, is not of good quality, though this appears to be due to the presence of decaying vegetable matter (see Analysis 2S).

The water of the lake itself (Analysis 2T) is of fair quality, and the analysis does not show an appreciable sewage contamination. This is in marked contrast to the water of Lake Gleneida, and is probably due to the difference in size of the lakes and the prevailing use of cesspools along the shores of Lake Mahopac. Of the two main tributaries to the Muscoot river, the water of Secor Lake outlet (Analysis 2V) is of fair quality, while that of Amawalk brook (Analysis 2Y) is very unsatisfactory, the relatively large amount of chlorine indicating considerable sewage contamina-

and the Muscoot River, with their Tributaries.

Odor at 100° Fahr.	Chlorine in Chlorides.	Equivalent to Sodium Chloride.	Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by Evaporation).
									Before Boiling.	After Boiling.			
Marshy.....	0.175	0.289	None.	None.	0.0436	0.0070	0.0220	0.0675	4.56	4.30	1.40	5.20	6.60
Faint marshy.....	0.280	0.462	"	"	0.0054	0.0035	0.0175	0.0227	2.69	2.69	0.80	3.50	4.30
"	0.193	0.318	"	"	0.0128	0.0045	0.0205	0.0334	4.19	4.19	0.90	5.20	6.10
"	0.263	0.433	"	"	0.0011	0.0087	0.0233	0.0275	4.56	4.56	0.80	5.80	6.60
Marshy.....	0.210	0.346	"	"	0.0111	0.0065	0.0375	0.0474	5.48	5.26	2.00	6.00	8.00
Faint marshy.....	0.280	0.462	"	"	0.0058	0.0030	0.0260	0.0297	5.64	5.64	1.80	6.50	8.30
Marshy.....	0.438	0.722	"	"	0.0148	0.0020	0.0210	0.0337	6.12	6.07	3.00	7.00	10.00
Faint marshy.....	0.281	0.462	"	"	0.0132	0.0040	0.0240	0.0363	5.26	5.16	1.80	6.80	8.60
"	0.281	0.462	"	"	0.0074	0.0010	0.0210	0.0250	5.58	5.58	3.00	6.00	9.00
.....	0.244	0.439	None.	None.	0.0128	0.0045	0.0236	0.0360	4.90	4.83	1.72	5.78	7.50

tion. A consideration of this analysis as a whole indicates "previous sewage contamination," with oxidation of its organic nitrogen and subsequent assimilation of the products of oxidation by vegetable life. At a point three miles below Lake Mahopac (Analysis 2V), the water of the river is not of good quality, showing apparently the effect of the drainage of the Village of Mahopac Falls, and of a large swamp through which the river flows. At its junction with the Croton river (Analysis 3A) the water has improved somewhat in character ; but cannot still be considered as of good quality.

TABLE VII.—*Analyses of Samples from the Croton River, from*

Map No.	Laboratory No.	Date when Sample was Taken.	LOCATION.	APPEARANCE.	COLOR.
3B	6713	Sept. 19	Combined Middle and West Branches, at junction with East Branch.....	Turbid	Light yellowish brown.....
3C	6714	" 19	Croton river, below Croton Falls	"	Yellowish brown.....
3D	6715	" 19	Croton river, above Purdy's, and junction of Titicus river.....	"	" .....
3E	6716	" 19	Croton river, below Purdy's	"	Light yellowish brown.....
3F	6718	" 19	Croton river, above Golden's Bridge.....	Somewhat turbid.	Very light yellowish brown
3G	6717	" 19	Large tributary from the east, at junction with Croton river above Golden's Bridge	"	Light yellowish brown....
3H	6695	" 16	Brook flowing through Golden's Bridge. Above the town.....	"	Yellowish brown.....
3I	6696	" 16	Brook flowing through Golden's Bridge. Pool where brook ends.....	Very turbid.....	" .....
3J	6719	" 19	Croton river, below Golden's Bridge	Somewhat turbid.	Light yellowish brown ....
3K	6740	" 24	Plum brook, at junction with Croton river below Golden's Bridge	Slightly turbid...	Very light yellowish brown
3L	6720	" 19	Tributary from the east, at junction with Croton river, one and three-fourths miles below Golden's Bridge	Very turbid.....	Light yellowish brown ....
3M	6721	" 19	Croton river, above Katonah, and junction of Cross river.....	Turbid	" ....
3N	6741	" 24	Croton river, below junction of Muscoot river, upper end of Croton Lake.....	Somewhat turbid.	Very light yellowish brown
			Average of above analyses.....		

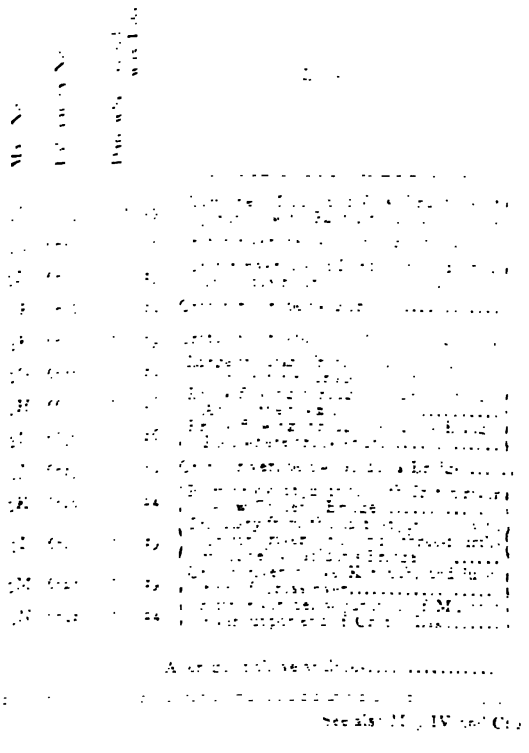
(See also Map IV. and Chart VII.)

The water of this river is uniformly of poor quality. That of all its tributaries is of very poor quality, with the exception of Plum brook (Analysis 3K), whose water may be classed as fair, though showing evidence of previous sewage contamination, and of the Muscoot river, already described. The amount of total nitrogen in the water of the river increases somewhat as we go down the stream (see Chart IX.), and while the decease in free ammonia and nitrites, and the increase in nitrates and albuminoid ammonia would point to a certain degree of self-purification,

the Junction of its Branches to Croton Lake, with its Tributaries.

Odor at 100° Fahr.	Chlorine in Chlorides.	Equivalent to Sodium Chloride.	Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by Evaporation).
									Before Boiling.	After Boiling.			
None.....	0.175	0.289	None.	0.0014	0.0225	0.0310	0.0080	0.0561	3.49	3.49	0.60	4.00	4.60
Faint marshy...	0.193	0.318	"	0.0008	0.0157	0.0200	0.0100	0.0422	4.73	4.62	2.00	5.00	7.00
Earthy	0.184	0.303	"	0.0006	0.0175	0.0180	0.0150	0.0452	4.62	4.62	2.00	5.90	7.90
Stale ; marshy.	0.193	0.318	"	0.0008	0.0140	0.0220	0.0100	0.0411	4.83	4.73	1.00	8.90	9.90
Faint marshy...	0.193	0.318	"	0.0006	0.0340	0.0180	0.0130	0.0601	5.00	5.00	1.00	7.00	8.00
None.....	0.315	0.520	"	None.	0.0115	0.0060	0.0070	0.0212	5.66	5.00	1.00	8.30	9.30
Marshy.....	0.587	0.967	"	0.0008	0.1301	0.0010	0.0070	0.1375	5.91	5.48	1.30	11.10	12.40
"	0.534	0.881	"	0.0014	0.0719	0.0110	0.0140	0.0939	5.64	5.37	1.40	9.50	10.90
Faint marshy...	0.193	0.318	"	0.0008	0.0223	0.0120	0.0180	0.0478	4.79	4.79	0.90	8.50	9.40
Strong marshy.	0.210	0.346	"	None.	0.0466	0.0035	0.0115	0.0588	6.00	5.65	1.40	6.70	8.10
Slightly stale..	0.438	0.722	"	0.0008	0.0667	0.0180	0.0240	0.1019	8.27	6.74	6.50	8.00	14.50
Faint marshy...	0.193	0.318	"	0.0008	0.0321	0.0100	0.0200	0.0576	5.00	4.35	1.50	8.50	10.00
None.....	0.193	0.318	"	0.0006	0.0279	0.0055	0.0205	0.0500	5.05	4.79	1.50	7.20	8.70
.....	0.277	0.467	None.	0.00072	0.0394	0.0135	0.0137	0.0626	5.31	4.97	1.70	7.58	9.28

both through oxidation and through assimilation of the products by vegetable life, this is fully offset by contamination of the river itself along its course, and the addition of polluted water through its tributaries. The brook flowing through Golden's Bridge was not a source of pollution at the time of our inspection, as it was dry for a considerable distance from its mouth ; but under normal conditions of rain-fall it must carry much sewage into the river (see Analyses 3H and 3I).



See also IV and C

The water of this river is uniformly [illegible] quality, with the exception of Hamilton Brook, only the slightest evidence of previous sewage contamination. The amount of total nitrogen in the water down the stream (see Chart IX.), and while the [illegible] in nitrates and albuminoid ammonia would [illegible]

RANCE.

...what turbid	Light yellowish green
turbid...	Yellowish brown
...what turbid	Light yellowish brown
...y turbid	Very light yellowish brown
"	Greenish
...what turbid	Light yellowish brown
.....	Very light yellowish brown
...what turbid	"
"	Yellowish brown
"	"
...rbid.....	Yellowish green
... turbid...	Very light yellowish brown
...	"
...ghtly turbid	Light greenish
...rbid...	Yellowish brown
... ...	Light yellowish brown
... turbid..	Very light yellowish brown

...

...spectively at the head of Croton
...water in its passage through
...ase in quality at the gate-house
...contamination through the
... as it enters the aqueducts. I
... bad (Analyses 3P and 3Q)
...ing other evidence of con
... tair (Analysis 3S). The
... their water (Analyse

Tributaries.

	Equivalent of Sodium Chloride.	Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates.	Free Ammonia.	Albuminoid Ammonia.	Total Nitrogen.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile (Loss on Ignition).	Mineral Matter (Non-volatile).	Total Solids (by Evaporation).
								Before Boiling.	After Boiling.			
270	0.346	None.	0.0001	0.0218	0.0035	0.0065	0.0301	4.13	4.13	1.30	7.60	8.90
456	0.751	"	0.0008	0.0313	0.0110	0.0245	0.0613	7.22	6.09	3.20	10.50	13.70
210	0.346	"	0.0001	0.0172	0.0390	0.0100	0.0576	4.52	4.13	1.80	8.50	10.30
0.237	0.390	"	None.	0.0609	0.0060	0.0095	0.0736	4.35	4.13	1.90	7.20	9.10
175	0.289	"	"	0.0326	0.0015	0.0065	0.0392	3.92	3.92	1.90	7.00	8.90
208	0.491	"	0.0003	0.0191	0.0065	0.0085	0.0317	5.87	5.44	2.80	8.50	11.30
0.473	0.799	"	0.0003	0.0631	0.0030	0.0145	0.0778	7.18	6.53	1.60	10.90	12.50
0.163	0.318	"	None.	0.0244	0.0005	0.0100	0.0330	3.26	3.26	1.30	5.50	6.80
0.260	0.462	"	0.0001	0.0152	0.0115	0.0145	0.0367	5.13	4.79	0.90	7.80	8.70
0.333	0.549	"	None.	0.0054	0.0035	0.0170	0.0217	5.66	5.66	1.20	9.00	10.20
315	0.520	"	"	0.0161	0.0005	0.0055	0.0210	6.53	5.87	1.00	12.80	13.80
0.228	0.375	"	0.0001	0.0691	0.0010	0.0040	0.0733	4.25	4.18	1.30	8.30	9.60
0.228	0.375	"	None.	0.0321	0.0010	0.0110	0.0420	5.96	5.66	1.50	9.50	11.00
0.237	0.390	"	"	0.0329	Trace.	0.0015	0.0341	6.61	5.66	2.50	8.70	11.20
0.210	0.346	"	0.0003	0.0315	0.0015	0.0060	0.0380	8.70	6.09	2.00	14.50	16.50
0.298	0.491	"	None.	0.0313	0.0020	0.0140	0.0445	5.13	4.57	2.60	8.10	10.70
0.228	0.375	"	0.0001	0.0238	0.0110	0.0140	0.0445	5.22	4.57	2.80	8.30	11.10
0.271	0.448	None.	0.00013	0.0310	0.0061	0.0104	0.0447	5.51	4.98	1.86	8.98	10.84

and 4A). Of these the most important is Kisco brook. A comparison of the analyses of samples taken respectively above and below the town of Mount Kisco shows very the large increase of chlorine, the pollution received from that town. This is to be hen the thorough drainage of the town by the brook is considered. The branch of the ing through Newcastle and near Oakview Cemetery gives similar indications of pollu- these sources (see Analyses 3V and 3W). While the organic nitrogen of the brook is oved by oxidation and vegetable assimilation before the water enters the reservoir, its not be considered as of good quality.

CONCLUSIONS.

Up to July 31 of this year, the large number of analyses, covering a period of seven years made of Croton water as supplied to New York City, by Dr. Waller, and by ourselves, have shown uniformly negative results as to the presence of nitrites. In the analysis made on the above date, nitrites were found. From August 27 to November 6, samples were taken weekly from six different localities throughout the city, viz.: from the gate-house at One Hundred and Thirty-fifth street, the Central Park Reservoir, the Forty-second Street Reservoir, and from hydrants in Fifty-first, Mott and State streets. Nitrites were detected in one or more of these samples up to October 29. The samples taken on this date gave negative results. During the time occupied by our inspection of the Croton water-shed (August 15 to September 25), nitrites were found from week to week in all of the above samples. (See pages 86 to 88.)

The exceptional occurrence of nitrites in Croton water, as noted above, must be considered as indicative of a marked deterioration in the sanitary quality of the water. The results of our inspection of the Croton water-shed, and the analyses of samples collected over the area covered by inspection, afford an explanation of this deterioration. Briefly summed up, these results are as follows:

With but few exceptions, the streams, lakes and reservoirs on the water-shed show evidence of sewage contamination, more or less marked. Considering the long period of extreme drought which had prevailed on the shed previous to and during our inspection, and which had allowed of the accumulation of exceptionally large quantities of polluting material ready to be washed into the streams, etc., by the first heavy rain-fall, there can be no doubt that such rain-fall would have materially increased the contamination found. The long-continued dry weather has had a bad effect, in necessitating the use of storage water from reservoirs as a very large percentage of the total supply. This water, in several instances, exhibited the bad qualities due to practical stagnation during warm weather, in reservoirs containing much decomposing vegetable matter on their sides and bottoms.

The water of Sodom Reservoir and its outlet, the East Branch, was of specially bad character, both from accumulation of the products of vegetable decay, and from contamination. It is specially to be noted that from July 15, and during the time of our inspection, one-third of the entire water supply was drawn from this source, and that the deterioration of the supply, as indicated from the analyses, begun soon after the above date. When all of the above facts are considered, the decrease in the organic purity of Croton water follows as a necessary consequence.

On November 6, although the drouth still continued, the nitrites in Croton had disappeared. This is explained by the fact that shortly before this date the supply of water from Sodom Reservoir was exhausted, and that the commencement of colder weather started a circulation of the water stored in the other reservoirs, by which the agencies of agitation, oxidation, light, etc., were brought into play so as to effect a partial purification.

In general, we conclude that the condition of affairs as found by our investigation to exist at the present time on the Croton water-shed, is of a most serious character and requires immediate attention. There is nothing more important to the health of a community than the purity of its water supply. The danger to the City of New York from an outbreak of typhoid fever, or other kindred disease, on the Croton water-shed, is plainly apparent in the light of the facts set forth in

iis report. This danger must increase with the progressive deterioration of the water supply, nd under existing conditions, such deterioration, while it may be gradual, is in our opinion, ievitable. It is, therefore, of paramount importance that prompt and efficient means be taken to :move the sources of contamination already existing on the water-shed, and to prevent future ollution from new sources.

Respectfully submitted,

EDWARD W. MARTIN, Chemist.
ALFRED L. BEEBE, Assistant Chemist.

Well Waters, New York Island.—The following table gives the results of a number of ıalyses, made during 1891 and previously, of water taken from wells in various parts of New ork City. Sewage pollution is plainly shown. The impossibility of procuring water of good .nitary quality from such wells has been fully explained on page 147 of this report, which see.

TABLE NO. 8.—*Analyses*

LOCATION.	APPEARANCE.	CHLORINE	SODIC CHLORI
Canal street	Clear	7.090	11.70
Monroe street	"	12.50	20.61
"	"	12.37	20.41
Fifteenth Ward		13.79	22.74
West Twenty-third street	Clear	9.266	15.29
"			
West Thirty-second street	Yellow, opaque	9.37	15.45
Twenty-second Ward	Clear	6.486	10.70
Lower Broadway (60 feet deep)	Clear, light blue	6.213	10.25
Grand street (30 feet deep)	"	0.941	1.551
West Twelfth street (50 feet deep)	Clear, light blue green	1.882	3.102
East Fifty-fourth street	Clear, light blue	3.648	6.011
East Fifty-fifth street (300 feet deep)	Yellow green	16.69	27.51
Marion street		12.50	20.60
Avenue D	Clear, light blue	3.60	5.30
Chambers street (43 feet deep)	Clear, blue brown	0.190	0.310
Montgomery street	Clear, blue green	10.990	17.49
Goerck street	"	14.100	22.50
East Fifth street (40 feet deep)	Slightly turbid, brownish	8.232	13.566
South Fifth avenue	Clear, brown	8.071	13.30
East Fifty-fourth street (160 feet deep)	Clear, light blue	6.255	10.308
Jackson street (73 feet deep)	Clear, light brown blue	5.101	8.406
Harrison street	Clear, brown	9.66	15.37
Macdougal street (69 feet deep)	Turbid, brown	8.232	13.566
Greenwich street (55 feet deep)	Turbid, green	14.59	24.04
"	Clear, light blue	11.823	19.480
William street	Clear, colorless	45.00	74.00
Mulberry street	Clear, light blue	10.823	17.22
Spring street	Light yellow brown	16.98	27.03
East One Hundred and Twenty-eighth street (130 feet deep)	Clear, light blue	0.807	1.330
Broadway and Nineteenth street (850 feet deep)		26.64	42.40
" (30 feet deep)		15.986	25.44
North Moore street	Clear, brown blue	13.32	21.20
Mott and Varick streets	Clear, light blue	15.48	24.64
One Hundred and Fifteenth street and Fifth avenue	Turbid, light yellow	2.780	4.810
No. 419 East Fifty-fourth street	Slightly turbid, light yellow brown	7.873	12.991
No. 112 Hudson street (35 feet deep)	Very slightly turbid, very light yellow brown	17.520	28.870

Well Water, New York Island.

Phosphates.	Nitrogen in Nitrites.	Nitrogen in Nitrates	Free Ammonia.	Albuminoid Ammonia.	Hardness Equivalent to Carbonate of Lime.		Organic and Volatile.	Mineral Matter.	Total Solids.
					Before Boiling.	After Boiling.			
Trace.....	.....	1.0400	0.0024	0.0036	15.57	6.30	.....	.....	68.00
"	.....	0.6130	None.	0.0060	23.70	16.40	5.20	102.30	107.50
"	.....	5.8400	0.0015	None.	23.93	15.68	18.00	86.30	104.30
"	.....	3.1540	0.0100	0.0070	22.06	17.06	Trace.	74.50	74.50
"	.....	5.0700	0.0832	0.0480	34.12	16.08	25.50	83.80	109.30
.....	.....	4.1740	0.0110	0.0070	.....	.....	11.80	69.20	81.00
Trace.....	.....	0.3700	0.0290	0.0060	21.57	6.18	15.00	55.00	70.00
"	.....	0.4810	0.0008	0.0140	30.80	11.76	8.00	46.90	54.90
None.....	Present.	1.3090	0.0433	0.0120	10.497	7.87	8.75	36.74	45.49
"	None.	0.5760	None.	0.0032	4.58	4.27	4.37	10.21	14.58
"	"	1.2540	0.3500	0.0021	6.08	6.04	5.54	17.50	23.04
Faint trace	0.0002	0.2390	0.0014	0.0047	19.084	6.043	9.33	40.24	49.57
.....	None.	0.1570	0.2900	0.1020	45.60	11.55	5.00	100.30	105.30
Trace.....	"	0.6127	None.	0.0060	23.70	8.20	11.20	74.83	86.03
Decided.....	"	0.2370	0.0120	0.0130	8.28	6.46	3.00	14.50	17.50
None.....	"	0.0470	0.0020	0.0160	3.50	3.40	3.00	5.00	8.00
Decided.....	Trace.	9.8000	0.0120	0.0060	35.70	21.60	19.00	95.00	114.00
"	0.0004	6.5000	0.0810	0.0410	28.90	21.20	24.00	76.50	100.50
None.....	0.0002	4.9070	0.0410	0.0084	41.04	29.40	33.00	105.50	138.50
Trace	0.0002	5.7580	0.0086	0.0030	17.938	7.39	26.30	69.20	95.50
Faint trace	0.0002	0.4700	0.0024	0.0080	32.72	10.36	16.00	69.00	85.00
Trace	0.0002	1.6980	0.0950	0.0270	15.15	8.36	9.10	44.50	53.60
Decided trace..	0.0003	0.7411	0.3000	0.0320	10.58	3.40	12.50	39.80	52.30
Trace	0.0003	3.0110	0.0240	0.0080	22.30	19.15	25.00	89.00	114.00
"	0.0003	3.2000	0.0102	0.0102	24.32	9.61	16.00	83.00	99.00
Decided.....	0.0001	4.5280	0.0012	0.0036	22.22	13.42	13.50	85.00	98.50
Strong.....	0.0006	0.2050	0.0040	0.0035	58.00	45.00	22.00	134.00	156.00
Decided.....	0.0003	2.0570	0.0020	0.0056	19.00	12.54	23.80	66.90	90.70
Very decided..	0.0004	3.2300	0.0650	0.0830	19.52	6.24	15.00	83.00	98.00
Heavy trace...	0.0003	0.4090	0.0026	0.0004	9.48	5.01	2.00	10.00	12.00
Decided.....	0.0003	0.8940	0.0430	0.0130	41.66	28.82	17.50	91.00	108.50
"	0.0002	0.8202	0.0030	0.0070	41.66	21.99	17.00	78.20	95.20
"	0.0003	5.6491	0.1400	0.0220	12.32	6.12	24.00	65.50	89.50
"	0.0003	6.5862	0.0024	0.0006	18.74	8.61	30.00	71.00	101.00
None.....	0.0004	2.0588	0.0020	0.0120	12.52	10.78	11.00	31.50	42.50
"	0.0002	0.8235	0.0300	0.0150	30.60	17.00	11.00	112.00	123.00
"	0.0010	4.0433	0.0900	0.0300	30.60	17.00	23.00	89.00	112.00

Analysis Number.	Water.	Fat.	Total Solids.	Solids Not Fat.	Salts.	Milk Sugar.	Cane Sugar.	Albumen and Casein.	Milk Solids.
6430	26.40	10.45	73.60	63.15	2.05	11.99	39.06	10.05	34.54
6431	25.50	10.60	74.50	63.90	2.05	12.54	38.64	10.67	35.86
6432	25.92	11.03	74.08	63.05	2.03	11.35	38.02	11.65	36.06
6433	27.47	10.08	72.53	62.45	2.00	12.09	37.71	10.65	34.82
6434	27.77	10.70	77.23	66.53	2.05	13.85	36.25	14.38	40.98
6435	25.42	10.00	74.58	64.58	1.73	12.19	40.93	9.73	33.65
6436	69.45	9.50	30.55	21.05	1.78	10.48	.....	8.79	30.55
6437	70.10	9.13	29.90	20.77	1.70	12.54	.....	6.53	29.90
6438	69.20	10.25	30.80	20.55	1.13	.....	.....	.....	.....
6439	26.27	8.45	73.73	65.28	1.85	12.69	43.71	7.03	30.02
6440	25.20	10.15	74.80	64.65	2.00	14.03	37.88	10.74	36.92
6441	25.12	9.10	74.88	65.78	1.88	12.69	37.81	13.40	37.07
6442	25.60	8.48	74.40	65.92	1.85	12.24	43.84	7.99	30.56
6444	26.22	11.35	73.78	62.43	2.03	12.69	37.93	9.78	35.85
6445	28.82	10.73	71.18	59.45	1.80	.....	.....	.....	.....
6447	26.87	11.75	73.13	61.38	1.95	.....	.....	.....	.....
6449	29.72	7.23	70.28	63.05	1.85	13.14	33.87	14.19	36.41
6471	25.10	8.65	74.90	65.25	1.88	11.94	45.63	8.80	31.27

No samples of condensed or preserved milk were found that would warrant action being taken against the dealers, and in general it can be stated that the quality of both the condensed and preserved milks was good.

4th. *Experimental Analyses.*—Of these 407 were made during the year. The more important are as follows :

(a) Analyses of milk containing colostrum. The samples were taken from a cow immediately after calving, and at intervals of twelve hours thereafter for several days.

(b) Comparison of various methods for the estimation of milk sugar and albumen in milk.

(c) Estimation of borax in milk.

(d) Tests on milk fat, extracted by Adam's method, for impurities.

(e) Separation and estimation of albumens and albuminoids in food products.

(f) Detection of strychnine in animal tissues.

(g) Estimation of morphine in food products and medicinal preparations.

(h) Comparison of various methods for the detection and estimation of antimony and arsenic in food products.

(i) Influence of varying conditions on the accuracy of the volumetric determination of chlorine in potable waters.

(j) Detection of minute quantities of grape sugar in urine.

(k) Separation and recognition of alpha and beta naphthol in food products.

INSPECTION OF MILK.

The inspection of milk has been carried out as in former years, as follows :

The Inspectors are provided with a lactometer and thermometer, which they have previously tested themselves, a tin cylinder for holding the milk to be tested, an inspection book and a label book (chapter 627, Laws of 1889), sample bottles holding six ounces, through the necks of which holes have been drilled, four-ounce bottles for laboratory samples, corks, wires, lead seals, and a sealing iron. A Sanitary Officer is detailed to accompany each Inspector as a witness.

The city is divided into seven milk inspection districts, which are enlarged or contracted as the number of milk stores therein increases or diminishes, in order that each Inspector may have about the same number of places under his supervision. There are at present in this city between four and five thousand places where milk is sold.

Each Inspector is required to be on duty at least eight (8) hours daily, except in special cases. He is required to have full knowledge of the number and character of the places where milk is sold in his district, of all points where milk enters his district from without the city, of the amount of milk so brought in, and in general to keep himself fully posted as to the milk trade in his district. He is shifted to another district every three weeks.

From May to November, inclusive, he is required twice a week to inspect the milk early in the morning (from 4 to 8.30 A. M.) as it is delivered by dealers to households.

At least twice a month, when the temperature is not so low as to freeze the milk, the Inspectors are required to examine milk as it comes into the city, at ferries or railroad depots. These inspections usually last from 11.30 P. M. to 5 A. M. Frequent attendance at court is necessary.

The routine of milk inspection is as follows: The Inspector enters the store and asks the questions which are necessary to fill in the blanks in his inspection book. Under the head of "Remarks," he notes the location of the milk-can in the store, whether or no there is a dipper in the can, and, in general, all points which may be of use in case the dealer is brought to trial. In the round circle on his pad he notes the marks on the cover of the milk-can, which indicate the name and location of the shipper of the milk. He then thoroughly mixes the milk to be examined, pours a sample into the tin cylinder, takes the temperature and notes the lactometer standing. If the milk stands below 100°, at a calculated temperature of 60°, he then warms or cools the milk exactly to 60°, and notes the lactometer standing. If the lactometer standing is below 100° at 60°, the appearance and taste also indicating that the milk has been watered, two samples are taken, one to be brought to the laboratory for confirmatory analysis, while the other is sealed by passing a wire through the cork and holes in the bottle neck, wrapping this once round the bottle neck, slipping a seal over the ends of the wire, and sealing this securely by means of the sealing-iron, which stamps "Health Department, City of New York" on one side, and on the other the distinguishing number of the Inspector. A label, in conformance with chapter 627, Laws of 1889, is then filled out and pasted on the bottle, and the latter delivered to the dealer or party in charge of the store. The milk is then destroyed by pouring it into the gutter or into the sink in the store. The sample for the Assistant Chemist is marked with the Inspector's distinguishing letter, and the number of the inspection, together with the lactometer standing. A slip duplicating the Inspector's memorandum of the inspection is left with the Chief Chemist for his information. When the report of the analysis is received from the Assistant Chemist, the Chief Chemist determines (by

advice of the Attorney and Counsel and Sanitary Superintendent) whether or not the dealer shall be arrested, and at once notifies the Inspector. Should the appearance, taste and lactometric standing of a sample of milk indicate that it is skimmed, or skimmed and watered, the course of procedure outlined above for watered milk is carried out, with the exception that the milk is not destroyed. In the matter of "early morning" inspections of dealers' wagons, or of night inspections at ferries or depots, the same plan is followed.

Nearly all of the places in the city where ice-cream is made have been inspected, to insure cleanliness and the use of proper material and vessels.

A comparison of the work performed by the Inspectors during the years 1890 and 1891 is given below:

	1890.	1891.
Inspections	58,721	96,377
Specimens examined	97,040	146,822
Complaints investigated	82	44
Nights of special work	103	74
Quarts destroyed	3,708	1,744
Arrests	299	186
Held on bail	287	170
Amount of fines	$7,400	$4,286

Increase in inspections	64 per cent.
Increase in specimens examined	51⅓ "
Decrease in quarts destroyed	53 "
Decrease in arrests	37 8/10 "

The following table shows the total receipts of milk, cream and condensed milk over all roads for 1890 and 1891:

	Milk (in Cans).		Cream (in Cans).		Condensed Milk (in Cans).	
	1890.	1891.	1890.	1891.	1890.	1891.
January	503,374	513,090	6,948	6,511	6,000	6,328
February	464,946	484,048	7,035	7,148	5,613	5,521
March	510,842	500,549	7,764	7,415	6,273	6,218
April	519,257	538,288	10,074	11,123	6,273	6,212
May	588,736	575,210	16,492	15,979	6,334	6,616
June	593,838	622,410	20,615	23,295	5,458	6,019
July	584,623	598,453	19,814	18,834	5,911	5,756
August	530,902	578,245	16,517	17,471	5,153	5,636
September	502,938	585,180	10,377	15,051	4,906	4,873

	Milk (in Cans).		Cream (in Cans).		Condensed Milk (in Cans).	
	1890.	1891.	1890.	1891.	1890.	1891.
October	513,757	591,557	7,431	10,407	5,587	4,956
November	491,495	561,032	7,363	9,154	5,351	4,919
December	474,084	557,033	6,577	8,710	5,872	5,058
Total	6,284,732	6,715,155	137,007	151,098	68,731	68,112
Equivalent in quarts	251,389,280	268,606,200	5,480,280	6,043,920	2,749,240	2,724,480
Increase in quarts, 1891 over 1890.	.....	17,216,920	.....	563,640	.....	*24,760

* Decrease.

A system of issuing permits for the sale of milk, cream and condensed milk to all venders of milk throughout New York City is, in the opinion of the Chemist, eminently desirable. A brief outline of the system, as given in report for 1890, is repeated here: Each vender would make application to this Department for a permit to sell milk, etc., in which application should be stated his name and address and the amount of milk, cream or condensed milk he proposes to sell daily. The source from which the milk, etc., is to be obtained should also be stated. Permits would now be issued, which would be of three classes. The first class would be issued to venders who desire to sell milk at a specified place; the second class to milk peddlers, and the third class to those who desire to engage in the sale of milk by both methods. Thereafter, any vender convicted of a violation of section 186 of the Sanitary Code, or of other sections relating to the sale of adulterated milk, would be warned that a second conviction would result in the immediate revoking of his permit. The advantages to be derived from this system would be:

1st. The driving out of business of all venders habitually selling adulterated milk.

2d. A great improvement in the quality of milk brought into the city, through the fact that venders, for their own protection, would insist upon being furnished by producers with an unadulterated article.

3d. The prevention of the sale of milk from cows improperly fed and cared for, as permits would be refused to venders dealing in the milk from such animals.

INSPECTION OF FRUIT AND FOODS.

This has been carried on as in 1890. Fruit, vegetables and canned goods have been inspected as brought into the city on vessels, at piers and at railroad depots, and also at commission houses, auction rooms, sales of condemned government stores, etc. At least once a week during the summer, the fruit and foods offered for sale by venders in Ludlow, Hester, Mulberry and adjacent streets have been inspected; also that sold on Ninth avenue, between Forty-second and Thirty-seventh streets. Fruit Inspector B. C. Fuller reports the receipts for the year as follows:

Fruits.

Bananas	4,000,000 bunches.
Oranges	1,750,000 boxes and barrels.
Apples	750,000 barrels.
Foreign and domestic grapes	3,000,000 kegs, crates and baskets.
Small fruits, Peaches, pears, plums, Berries of all kinds	5,000,000 crates, barrels and baskets.
Pineapples	12,774,000
Foreign and domestic dried fruits	7,500,000 cases, bags and boxes.
Total	34,774,000

Canned Goods.	Cases.
Tomatoes	450,000
Corn	325,000
Beans, squash, asparagus, etc.	800,000
Fruits	900,000
Salmon, lobsters, oysters, sardines and mackerel, etc	330,000
Foreign sardines, etc., and domestic meats	2,500,000
Total	5,305,000

Vegetables.	Pounds.
Beets	8,000,000
Carrots	50,000
Cabbage	30,000,000
Onions	10,000,000
Potatoes (sweet and Irish)	558,000,000
Small vegetables (miscellaneous) and eggs	20,000,000
Total	626,050,000

The work performed by the Fruit Inspectors has increased. Over 160,000 pounds more fruit, etc., were seized in 1891 than in 1890.

INSPECTION OF MEAT.

The inspection of meat during the year has been conducted as heretofore, with this in addition, that every retail butcher store in the city was inspected at least once for the purpose of determining the following :

1st. Quality of the meat sold.

2d. Whether premises were clean.

3d. Whether the ice-box was connected with the sewer in such a way as to prevent the discharge of sewer gas into said box.

Number of butcher stores inspected	2,07
General condition good	1,99
General condition bad	7
Properly connected with sewer	1,27
Improperly connected with sewer	79

In every case where improper sewer connection was observed, the facts were at once reported to the Chief Sanitary Inspector for action. Inspections were made tri-weekly of all the public markets, to ascertain their general condition, and it was found that with but few exceptions the quality of the meat and fish sold was good, and the markets in good sanitary condition.

Tuberculosis.—All of the cattle killed in the city were examined by the Meat Inspectors, as far as possible, particular attention being given to detecting tuberculosis, and as this disease appears to be confined almost entirely to cows, it is safe to say that very little tuberculous meat has escaped the scrutiny of the Inspectors. Only few cases were found. In one instance, where the cow was found to have come from this State, Meat Inspector Mars and Veterinarian Johnson were sent to the farm. The herd was examined, and as some of the cows were affected with tuberculosis, all of the milk from this farm was prevented from coming to the city. A sample of milk from one of the cows was taken and submitted to Dr. Prudden, Consulting Pathologist to the Department, who identified the bacillus tuberculosis in the milk, and was enabled by culture to propagate the germ and reproduce the disease in animals. Whenever a case of tuberculosis is discovered by the Meat Inspectors, the locality where the animal came from is ascertained, and all of these facts are at once forwarded in a special report.

The inspection of veal has been carried on with great care, 60,000 pounds more of "bob" veal being seized during 1891 than in 1890. The amount of work performed by the Meat Inspectors is largely in excess over the preceding year. Over 300,000 pounds more of meat were seized during 1891 than in 1890. The following table shows the number of animals slaughtered in this city during the past year:

	Carcasses.	Pounds
Cattle	450,982	306,363,400
Hogs	1,289,333	155,327,080
Sheep and lambs	1,156,283	51,032,735
Calves	211,341	20,937,380
Total	3,107,939	533,660,595

The following table shows the amount of meat and poultry brought into this city during the past year:

Live poultry, 1,214 car-loads, amounting to	13,354,000	pounds.
Dressed poultry, 337,572 packages, amounting to	67,514,400	"
Dressed beef, 290,000 carcasses, amounting to	304,500,000	"
Dressed sheep, 730,000 carcasses, amounting to	29,200,000	"

Dressed hogs, 450,665 carcasses, amounting to	45,066,500	pounds.
Dressed calves, 300,000 carcasses, amounting to	24,000,000	"
Total	483,624,900	pounds.

INSPECTION OF FISH.

The inspection of fish has been carried on as during the preceding year. Fulton Market, the great fish depot of the city, and the adjacent ice-houses, have been inspected daily. The fish sold on the east side has been inspected bi-weekly, besides the small retail stands, stores, licensed venders, etc. Over 50,000 pounds more of fish were seized during 1891 than in 1890.

The cold storage of fish is largely carried on in this city, over 500,000 pounds of fish are so stored. Daily inspections of these ice-houses are made.

During the past year there was brought into this city over 43,000,000 pounds of fresh fish.

INSPECTION OF OFFENSIVE TRADES.

The same system of inspection has been followed as in the preceding year, and with the exception of the nuisances caused by the Standard Gas Company, which have been abated, no serious cause of complaint has been found against the other gas companies, the slaughter-houses or their allied industries. Daily inspections have been made of the gas-houses, and the general condition of the works has been found good. Many complaints have been received of gas leaks in mains, etc., but this kind of nuisance has usually been abated within twenty-four hours after receiving the complaint; the course pursued being to notify the gas companies having mains in the locality where the leak occurs. In no instance have the companies so notified allowed a greater length of time than twenty-four hours to elapse before closing the leak or endeavoring to find it.

The quantity of gas manufactured in this city has increased during the past year. The following table shows the amount made daily by the different companies:

Name of Company.	Location of Works.	Kind of Gas.	Average Daily Output.	Miles of Mains in Use.
Consolidated	Eighteenth street and Tenth avenue	Coal	35,000,000	790
"	Forty-second street and Eleventh avenue	"		
"	Forty-fourth street and Eleventh avenue	Water		
"	Fourteenth street and Avenue C	"		
"	Twenty-first street and Avenue A	"		
"	Ninety-ninth street and First avenue	"		
"	One Hundred and Tenth street and First avenue	"		
Mutual	Twelfth street and East river	"	2,500,000	140
Standard	One Hundred and Fifteenth street and East river	"	1,500,000	160
Equitable	Forty-second street and East river	"	4,000,000	140
Northern	West Farms	"	600,000	35
Central	Foot East One Hundred and Thirty-ninth street	"	800,000	60
Pintsch	One Hundred and Fifty-fourth street, near Railroad avenue	Oil	37,000	....

Several different methods of gas making are in use in this city. I append the report of Sanitary Officer J. W. Phillips, Inspector of Offensive Trades, in relation thereto, as follows:

1st. The Equitable Gas-light Company, Fortieth street and First avenue.—Jermanonnsky process: Heating stone lime in generator to an incandescent heat; injecting steam accompanied by a small quantity of oil through the body of the lime, thus decomposing the steam and forming hydrogen and carbonic oxide; from thence to hydrogen holder; to carburetters, where it takes up the naphtha vapors; through the carburetters to retorts heated to a very high temperature, where the gas becomes chemically fixed. From retorts to hydraulic main to purifiers, where the carbonic acid gas is removed by lime and the sulphur compounds are removed by oxide of iron. From purifiers to station meters, meters to holders, holders to consumers. This company has eight holders, with a capacity of five million cubic feet, an average output of four million feet per day, capacity of manufacturing eight million cubic feet of gas per day; consumes one hundred tons of hard coal per day. Drips and combustible refuse burned. Has one hundred and forty miles of mains. E. J. Enfer, superintendent.

Mutual Gas-light Company, Eleventh street and Avenue D.—Wilkinson process. In this process the steam is injected into generator and decomposed, forming hydrogen and carbonic oxide. From generator to holder, thence to condensers and scrubbers, to lime purifiers, where the carbonic acid gas is removed, thence to meter, from meter to illuminator, where it picks up vaporized naphtha, which supplies the light to the hydrogen. (It is to be noted that in this process the hydrogen is purified before meeting the naphtha vapors.) The hydrogen gas and the naphtha vapors pass from the illuminators to twenty-foot fixing retort, heated to a very high temperature, where the gases become chemically fixed; thence to condensers and scrubbers; to purifiers, charged with oxide of iron, which removes the sulphur compounds; thence to station meter holders, to consumers. This company has thirteen holders with a capacity of four and a half million feet, consumes a hundred tons of hard coal per day, average output two and a half million feet per day, and has one hundred and forty miles of mains. H. F. Allen, superintendent.

Standard Gas-light Company of New York. One Hundred and Fifteenth street and Harlem river.—Cupola system; Flannery process. In this process one machine is used for decomposing steam, vaporizing naphtha and fixing the gas. It is divided into three chambers, lined with corrugated fire-brick. The steam is injected into the front of the machine or generator, which is filled with coal heated to a red heat, where it is decomposed by passing through the body of the coal and thence to the middle chamber or super-heater, where it meets and takes up the naphtha vapors, the naphtha having been injected into the rear chamber or carburetter, and there forms a fixed gas; from thence to hydraulic main, to condensers, to scrubbers, to relief-holder, to purifiers, to station meter, to holders; thence to consumers. Oxide of iron and lime are used for purifying. This company has six holders, an average of one and a half million cubic feet per day, consumes thirty-five tons of hard coal per day, has one hundred and sixty miles of mains. Weeks, superintendent.

Eighteenth Street Station, Consolidated Gas Company.—At these works pure coal gas is manufactured, the process being the heating of retorts to a red heat, then charging the same with cannel coal by means of long scoops, each scoop operated by three men. As each retort is charged, it is hermetically sealed, and the heat is kept up by furnaces underneath. The process of distillation

requires about three hours. The lids of the retorts are then loosened and the gas at the mouth of the retort is lighted, in order to prevent explosion by its becoming mixed with air. The red hot coke is then raked out by means of a machine operated by steam, and is used at once for firing the furnaces, or is wheeled out in iron wheelbarrows into the yard, where it is quenched by water. The gases distilled from the coal pass to the hydraulic main. This hydraulic main has a water seal (in old works a tar seal), which effectually prevents any of the gases returning into the retorts after they have been opened. Tar accumulates very fast in hydraulic main, and has to be frequently removed. The gas after leaving main goes to dry scrubber; thence to condensers, where tar and aqueous vapors are removed; thence to washer to remove the ammonia, to purifiers where sulphur compounds and carbonic acid gas, etc., are removed; to station-house meter, holders and consumers. These works have ten holders; purifying material, lime. Albert Smith, superintendent.

Twenty-first Street Station, Consolidated Gas Company.—In this station there are two processes in use for making water-gas, the Tessie Du Motay and the Lowe process. As the Tessie Du Motay process is similar in many respects to the Equitable, it will be unnecessary to describe it. In the Lowe process three separate vertical retorts, kept at a very high temperature, are used: No. 1, the generator; No. 2, the carburetter; No. 3, the super-heater. The steam is injected into the generator, where it is decomposed, forming hydrogen and carbonic oxide; thence to carburetter, where it is carburetted by taking up the naphtha vapors, the naphtha having been injected into the carburetter and vaporized. The mixture then passes into the super-heater, where the gases become chemically fixed; from thence to holder, where the gas becomes partially cool and receives the necessary pressure to convey it to the scrubbers and condensers; thence to purifiers, where the carbonic acid gas and sulphur compounds are removed; thence to station-house meters, holders and consumers. These are the largest works in the city, covering more ground and having a larger capacity than any other. Lee, superintendent.

Consolidated Gas Company, Forty-second Street Works.—Manufactures coal-gas, enriched with oil. The retorts are heated to a very high temperature. In each retort there is a six-inch iron pipe running the length of the retort, to which there is connected a one-inch iron tube, through which the naphtha is injected into the red-hot six-inch iron pipe. In passing through this larger pipe the naphtha is vaporized. Escaping at the inner end of the pipe into the body of the retort, it becomes a fixed gas, going from thence to the hydraulic main, to dry scrubber, and thence to condenser, where it mixes with the coal gas, the mixture then entering the purifiers. This double process is not used with cannel coal—only with a low grade of bituminous coal—the naphtha very much increasing the candle power. Lime is used for purifying. Four holders. Downs, superintendent.

Fourteenth Street Station, Consolidated Gas Company.—Pure coal gas, which has been described. Purifying material, lime. Nine holders. Albert Smith, superintendent.

One Hundred and Eleventh Street Station, Consolidated Gas Company.—Pure coal gas. Purifying material, lime. Four holders. Bradley, superintendent.

Ninety-ninth Street Station, Consolidated Gas Company.—The Tessie Du Motay process—water gas. Purifying material, lime. Four holders. Bradley, superintendent.

Forty-fourth Street Station, Consolidated Gas Company.—The Tessie Du Motay process. Purifying material, lime. Seven holders.

Total number of Consolidated holders at the works is forty-six. Outside of their works they have six holders at Sixty-fifth street and Amsterdam avenue, three at Sixty-third street, between First avenue and Avenue A, and one at Inwood. Total number of holders, fifty-six—seven hundred and ninety miles of mains.

The Pintsch and Compressing Gas-light Company, One Hundred and Fifty-fourth street, near Railroad avenue.—This company manufactures a gas from petroleum of very high candle power. The gas is used exclusively for lighting cars. The process is the heating of retorts to a very high temperature, injecting a constant stream of oil into said retorts where it is vaporized; the gases from the retorts pass down into a small square iron box, which contains a water seal, from thence through a main to condensers and washers, to purifiers, to meters, to holders. From holders it is compressed into cylinders on flat cars for distribution to wherever required. This gas is too expensive for ordinary lighting purposes, there being a large amount of residuum in the shape of drips, tar, etc. The holder capacity of works is: one ordinary holder, capacity of two thousand feet; four cylinders with a capacity of two hundred and sixty-five feet each; total storage capacity, three thousand and sixty cubic feet. Consumes eight thousand pounds of coke per day. Average daily output, thirty-seven thousand cubic feet. Purifying material, lime. C. F. Jewell, superintendent.

Central Gas-light Company of New York City, One Hundred and Thirty-eighth street and East river.—This company manufactures pure coal gas. Capacity of works about eight hundred thousand feet per day; average output four hundred and eleven thousand feet per day. Three holders with a capacity of six hundred thousand cubic feet. Sixty miles of mains. Purifying materials, lime and oxide of iron. William R. Beal, president and superintendent.

Northern Gas-light Company of New York, works at West Farms and Bronx river.—Pure coal-gas process. Three holders. Thirty-five miles of mains.

Slaughter houses and Allied Industries.—During the past year the general condition of the slaughter-houses has been excellent, and upon the east side a great improvement is contemplated, viz.: the tearing down of the old slaughter-houses between Forty-third and Forty-fourth streets, and the erection of a new abattoir on the site of the old ones. Mr. Jacob Fleischauer has rebuilt the abattoirs between Forty-fourth and Forty-fifth streets, on First avenue. By the summer of 1892, therefore, nearly all of the abattoirs on the east side will be of the most approved style, and furnished with all of the modern improvements, thereby reducing possible sources of nuisance to a minimum.

During April of this year the factory of Schwartzchild & Sulzberger, for working up and disposing of the offal, etc., was burnt down. In the building were six thousand green hides, besides many tons of dried blood. This necessitated the daily removal of nearly one hundred barrels of offal and blood by the offal contractors, White & Sons. This would have proved a source of dangerous and intolerable nuisance if it had not been for the hearty co-operation of the butchers and the offal contractors. Officer Phillips, Police Inspector of Offensive Trades, deserves especial mention, for during a period of nearly three weeks either he or I were on duty night and day, and only the most careful attention to the constant disinfection of the ruins, and the daily disinfection and removal of the offal and blood, prevented the odors from spreading over that portion of the city near the place. Bromine was found to be the best disinfectant and deodorizer. The result of this fire proves conclusively the necessity of disposing of the offal and blood at or

very near the place where the animals are killed; any system of removal to a distance will create a nuisance from time to time, no matter what care is exercised. A new factory is nearly completed. It will be in operation by March 1, 1892, and will be furnished with all of the best and improved means for disposing of the offal and blood. The slaughter-houses and allied industries are inspected daily, and the same system is in force as during the past year, viz.: constant disinfection with bromine and by whitewashing; cleaning up as soon as killing is over; daily removal of all blood, offal, hides, heads and hoofs, and the condensation and burning of all gases and vapors arising from their disposition. During this year the amount of blood and offal produced was about the same as last year, viz.: blood, 22,000,000 pounds; offal, 112,000,000 pounds.

The smoke nuisance is becoming a very serious matter in the city, as increase in the number of factories keeps pace with the growth of the city.

The following table shows the amounts of anthracite and bituminous coal consumed in this city yearly from 1888 to 1892:

Year.	Character of Coal.	Tons.	Year.	Character of Coal.	Tons.
1888	Anthracite	3,700,000	1890	Anthracite	3,750,000
1888	Bituminous	800,000	1890	Bituminous	900,000
1889	Anthracite	3,500,000	1891	Anthracite	4,000,000
1889	Bituminous	800,000	1891	Bituminous	1,000,000

The necessity of some means of consuming the smoke, resulting from the burning of this amount of coal, seems clearly indicated. It has been found that careful firing does much to abate the smoke nuisance. The Hudson River Railroad Company have abated in a great measure the nuisance from smoke at or near the depot at Forty-second street, on the line of the Fourth Avenue Tunnel, and on Eleventh and Twelfth avenues, by substituting coke as a fuel on the yard engines, hard coal for soft on many of the local trains, and careful firing when using either hard or soft coal.

The use of shavings and sawdust as a fuel is a constant source of nuisance; yet here, again, care in their use has done much to abate the nuisance.

Offensive odors from Hunter's Point have only been noticed at rare intervals, and have only lasted a short time. There appears to have been more care used in and about the Standard Oil Company's works than formerly. The distilling of bones at Hunter's Point, to produce animal charcoal, is no longer a source of nuisance, owing to the fact that the gases which formerly escaped are now treated for the purpose of saving the ammonia contained.

It has been found, as in former years, that many nuisances can be abated by explaining to those causing such nuisance the danger and discomfort they are producing, and it is gratifying to state that we have received, in most cases, the hearty co-operation of the parties complained of.

In conclusion, it gives me much pleasure to state that, without exception, the Assistant Chemists and Inspectors in this Division have performed their duties in a most creditable manner, and that the amount of work performed by each one of them is much in excess over that of any preceding year. It must be said that the amount of work performed by the Inspectors has reached its maximum.

Respectfully submitted,

EDWARD W. MARTIN, Chemist.

To the Board of Health, City of New York :

GENTLEMEN—I have the honor to submit the following report of the Willard Parker and Reception Hospitals for the year ending December 31, 1891 :

WILLARD PARKER HOSPITAL.

General Statement.

1891.	MALES.	FEMALES.	NATIVE.	FOREIGN.	TOTAL.	MOTHERS.
Remaining in Hospital December 31, 1890.....	17	17	31	3	34	2
Admitted.....	269	324	409	184	593	94
Total.....	286	341	440	187	627	96
Discharged.....	188	230	281	137	418	92
Died.....	80	85	127	38	165	..
Total.....	268	315	408	175	583	92
Remaining in Hospital December 31, 1891.....	18	26	32	12	44	4

Total number of cases treated.....	627
Mothers accompanying.....	96
Total number of patients and mothers.....	723
Scarlet fever, mortality per cent.....	24.69
Diphtheria, mortality per cent.....	28.05

REMAINING IN HOSPITAL DECEMBER 31, 1890.

	CLASS.				MALES.			FEMALES.				
	City.	Public Institutions.	Walked in.	Quarantine.	Native.	Foreign.	Total.	Native	Foreign.	Total.	Total Males and Females.	Mothers.
Scarlet fever.....	7	10	2	1	9	1	10	10	..	10	20	..
Diphtheria.....	6	4	4	..	6	1	7	6	1	7	14	2
Total.....	13	14	6	1	15	2	17	16	1	17	34	2

ADMISSIONS.

	CLASS.				MALES.			FEMALES.				
	City.	Public Institutions.	Walked in.	Quarantine.	Native.	Foreign.	Total.	Native.	Foreign.	Total.	Total Males and Females.	Mothers.
Scarlatina	189	72	29	14	113	35	148	110	46	156	304	44
Diphtheria	144	55	83	7	77	44	121	109	59	168	289	50
Total	333	127	112	21	190	79	269	219	105	324	593	94

DISCHARGES.

Scarlatina	119	63	25	9	85	21	106	79	31	110	216	40
Diphtheria	94	46	58	4	49	33	82	68	52	120	202	52
Total	213	109	83	13	134	54	188	147	83	230	418	92

DEATHS.

Scarlet fever	61	8	5	6	23	15	38	35	7	42	80	..
Diphtheria	47	10	26	2	31	11	42	38	5	43	85	..
Total	108	18	31	8	54	26	80	73	12	85	165	..

REMAINING IN HOSPITAL DECEMBER 31, 1891.

Scarlet fever	16	11	1	..	14	..	14	6	8	14	28	4
Diphtheria	9	3	3	1	3	1	4	9	3	12	16	..
Total	25	14	4	1	17	1	18	15	11	26	44	4

RECAPITULATION OF REPORT FOR THE YEAR ENDING DECEMBER 31, 1891.

	REMAINING IN HOSPITAL DECEMBER 31, 1890.		ADMITTED DURING THE YEAR.		DISCHARGED DURING THE YEAR.		DIED DURING THE YEAR.		REMAINING IN HOSPITAL DECEMBER 31, 1891.				
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Native.	Foreign.	Total.
Scarlet fever	10	10	148	156	106	110	38	42	14	14	20	8	28
Diphtheria	7	7	121	168	82	120	42	43	4	12	12	4	16
Total	17	17	269	324	188	230	80	85	18	26	32	12	44

SCARLET FEVER.

	Remaining in Hospital December 31, 1890.			Admitted during the Year.			Discharged during the Year.			Died during the Year.			Remaining in Hospital December 31, 1891			Mortality per centum.
	Native.	Foreign.	Total.	Native.	Foreign.	Total.	Native.	Foreign.	Total.	Native.	Foreign.	Total.	Native	Foreign.	Total.	
Under 5 years	15	..	15	133	34	167	90	20	110	47	14	61	11	..	11	33.3
5 years and under 16 years	3	1	4	87	40	127	71	29	100	10	8	18	9	4	13	13.70
16 years to 21 years	1	..	1	2	5	7	2	2	4	1	..	1	..	3	3	12.5
Over 21 years	..	..	..	1	2	3	1	1	2	..	..	..	..	1	1	....
Total	19	1	20	223	81	304	164	52	216	58	22	80	20	8	28	24.7

DIPHTHERIA.

	Remaining in Hospital December 31, 1890.			Admitted during the Year.			Discharged during the Year.			Died during the Year.			Remaining in Hospital December 31, 1891.			Mortality per centum.
	Native.	Foreign.	Total.	Native.	Foreign.	Total.	Native.	Foreign.	Total.	Native.	Foreign.	Total.	Native.	Foreign.	Total.	
Under 5 years	3	..	3	112	12	124	60	4	64	53	8	61	2	..	2	48.
5 years and under 16 years	6	1	7	46	16	62	33	11	44	11	5	16	8	1	9	23.2
16 years to 21 years	1	..	1	12	32		8	30	38	4		5	1	1	2	12.
Over 21 years	2	1	3	17	42	59	17	39	56	1	2	3	1	2	3	4.34
Total	12	2	14	187	102	289	118	84	202	69	16	85	12	4	16	28.

RECEPTION HOSPITAL.

General Statement.

1891.	Male.	Female.	Native.	Foreign.	Total.	Mothers.
Remaining in Hospital December 31, 1890	..	1	..	1	1	..
Admitted	464	440	443	461	904	150
Total	464	441	443	462	905	150
Discharged	15	5	7	13	20	5
Transferred	445	435	433	447	880	145
Died	4	1	3	2	5	..
Total	464	441	443	462	905	150
Remaining in Hospital December 31, 1891	..	..	..	..	..	..

REMAINING IN HOSPITAL DECEMBER 31, 1890.

	CLASS.			MALES.			FEMALES.				
	City.	Public Institutions.	Quarantine.	Native.	Foreign.	Total.	Native.	Foreign.	Total.	Total Male and Female.	Mothers.
Observation	1	..	..	..	..	..	..	1	1	1	..
Total	1	..	..	..	..	..	..	1	1	1	..
ADMISSIONS.											
Variola	6	..	15	2	13	15	..	6	6	21	18
Typhus fever	6	1	1	..	5	5	..	3	3	8	1
Scarlatina	166	64	11	63	49	112	74	55	129	241	7
Scarlatina and diphtheria	1	1	..	..	..	..	1	1	2	2	..
Scarlatina and ophthalmia	1	..	..	..	..	..	1	..	1	1	..
Measles	220	119	205	131	146	277	122	145	267	544	110
Measles and diphtheria	10	1	6	2	8	10	6	1	7	17	5
Pertussis	5	5	..	6	..	6	4	..	4	10	1
Varicella	4	7	4	7	3	10	4	1	5	15	5
Diphtheria	3	1	..	..	..	..	2	2	4	4	..
Leprosy	2	..	..	..	2	2	..	..	..	2	..
Mumps	1	..	..	..	..	..	1	..	1	1	..
Observation	29	5	4	14	13	27	3	8	11	38	3
Total	454	204	246	225	239	464	218	222	440	904	150
DISCHARGES.											
Variola	..	..	..	..	..	..	..	..	..	..	2
Measles	..	..	..	..	..	..	..	..	..	..	2
Leprosy	2	..	..	..	2	2	..	..	..	2	..
Mumps	1	..	..	..	..	..	1	..	1	1	..
Observation.											
Varicella	..	..	1	..	1	1	..	..	..	1	1
Mumps	1	..	..	1	..	1	..	..	..	1	..
Tonsilitis	1	..	..	..	1	1	..	..	..	1	..
Tonsilitis and specific urethritis, epididymitis	1	..	..	..	1	1	..	..	..	1	..
No case	8	3	2	4	5	9	1	3	4	13	..
Total	14	3	3	5	10	15	2	3	5	20	5

TRANSFERRED TO NORTH BROTHER ISLAND.

	Class.			Males.			Females.			Total Male and Female.	Mothers.
	City.	Public Institutions.	Quarantine.	Native.	Foreign.	Total.	Native.	Foreign.	Total.		
Variola	6	..	15	2	13	15	..	6	6	21	16
Typhus fever	6	1	1	..	5	5	..	3	3	8	1
Scarlatina	154	59	9	57	44	101	69	52	121	222	7
Scarlatina*	11	5	2	5	5	10	5	3	8	18	..
Scarlatina and diphtheria	1	1	..	..	..	..	1	1	2	2	..
Scarlatina and ophthalmia	1	..	..	..	..	..	1	..	1	1	..
Measles	219	119	205	130	146	276	122	145	267	543	126
Measles and diphtheria	10	1	4	2	6	8	6	1	7	15	5
Pertussis	5	5	..	6	..	6	4	..	4	10	1
Varicella	4	7	4	7	3	10	4	1	5	15	5
Diphtheria	3	..	..	..	..	..	1	2	3	3	..
Observation.											
Variola	1	..	..	..	1	1	..	..	..	1	..
Scarlatina	3	1	..	1	1	2	..	2	2	4	..
Scarlatina and measles	..	..	1	..	1	1	..	..	..	1	2
Measles	10	..	..	4	1	5	1	4	5	10	..
Diphtheria*	4	1	..	3	1	4	1	..	1	5	..
Diphtheria and mumps	1	..	..	1	..	1	..	..	..	1	..
Total	439	200	241	218	227	445	215	220	435	880	145

* To Willard Parker Hospital.

DEATHS.

Scarlatina	1	..	..	1	..	1	..	..	..	1	..
Measles	1	..	..	1	..	1	..	..	..	1	..
Measles and diphtheria	..	..	2	..	2	2	..	..	..	2	..
Diphtheria	..	1	..	..	..	..	1	..	1	1	..
Total	2	1	2	2	2	4	1	..	1	5	..

Dead bodies received, 88.

Remaining in hospital December 31, 1891, nil.

RECAPITULATION OF REPORT FOR THE YEAR ENDING DECEMBER 31, 1891.

	Remaining in Hospital December 31, 1890.		Admitted during the Year.		Discharged during the Year.		Transferred during the Year.		Died during the Year.		Remaining in Hospital December 31, 1891.					
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Native.	Foreign.	Total.	Mothers.
Variola	..	..	15	6	..	..	15	6	..	..	..	..	..	..	..	..
Typhus fever	..	..	5	3	..	..	5	3	..	..	..	..	..	..	..	..
Scarlatina	..	..	112	129	..	..	101	121	1	..	..	..	..	..	..	..
Scarlatina*	..	..	..	..	..	..	10	8	..	..	..	..	..	..	..	..
Scarlatina and diphtheria*	..	..	..	2	..	..	..	2	..	..	..	..	..	..	..	..
Scarlatina and ophthalmia	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..
Measles	..	..	277	267	..	..	276	267	1	..	..	..	..	..	..	..
Measles and diphtheria	..	..	10	7	..	..	8	7	2	..	..	..	..	..	..	..
Pertussis	..	..	6	4	..	..	6	4	..	..	..	..	..	..	..	..
Varicella	..	..	10	5	..	..	10	5	..	..	..	..	..	..	..	..
Diphtheria*	..	..	..	4	..	..	..	3	..	1	..	..	..	..	..	..
Leprosy	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..
Mumps	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..
Observation	..	1	27	11	..	..	..	..	..	..	..	..	..	..	..	..
Variola	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Scarlatina	..	..	..	..	..	..	2	2	..	..	..	..	..	..	..	..
Scarlatina and measles	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Measles	..	..	..	..	..	..	5	5	..	..	..	..	..	..	..	..
Varicella	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Diphtheria*	..	..	..	..	..	..	4	1	..	..	..	..	..	..	..	..
Diphtheria and mumps	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Mumps	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Tonsilitis	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Tonsilitis and specific urethritis, epididymitis	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
No case	..	..	..	..	9	4	..	..	..	..	..	..	..	..	..	..
Total	..	1	464	440	15	5	445	435	4	1	..	..	..	..	..	..

*To Willard Parker Hospital.

As compared with the report for the year 1890, the preceding tables show an increase in the number of admissions of scarlatina of 149, and a decrease of diphtheria of 3, a total increase of 146; and as compared with the year 1889, which is credited with 588 admissions, the largest number previously admitted to this hospital, the tables show also an increase in the number of admissions of scarlatina of 99, and of diphtheria a decrease of 94, a total increase of 5.

Number of operations performed for laryngeal stenosis, 66; per cent. of recoveries, 35 per cent., as against 44 operations in 1890 and 36.36 of recoveries. Average age of cases operated on 3 years, as against average age of cases operated on in 1890 of 3 years and 3 months. Of those who died after operation the immediate cause of death was: Asphyxia, 18; acute nephritis, 2; paralysis of the heart, 14; exhaustion, 7; and acute nephritis and paralysis of the heart, 2.

Total number of deaths from diphtheria, 85, or 25 per cent., of which 43, or 14 per cent., were intubated for laryngeal stenosis.

Respectfully submitted,

F. W. LESTER, Resident Physician.

RIVERSIDE HOSPITAL.

Table Showing Number of Patients Admitted each Month, 1891.

Diseases.	Remaining Jan. 1, 1891.		Jan.		Feb.		March.		April.		May.		June.		July.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Small-pox	..	..	..	..	3	..	2	..	2	2	1	..	..	..	3	..
Chicken-pox	1	..	4	3	..	..	2	1	3	2	..	..	1	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Typhus fever	..	..	..	..	..	..	..	..	2	1	1	..	1	..	1	2
Scarlet fever	6	..	6	11	8	7	13	3	22	43	22	27	17	23	4	3
Measles	5	5	25	19	28	22	19	20	37	35	26	34	37	25	46	30
Whooping-cough	2	5	..	1	..	..	2	3	2	1	..	..	1	..	..	..
Total by sexes	14	10	35	34	39	29	38	27	68	84	50	61	51	48	54	35
Total	24		69		68		65		152		111		105		89	

Diseases.	August.		Sept.		Oct.		Nov.		Dec.		Total Admitted.		Total Treated.		Remaining Dec. 31, 1891.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Small-pox	1	..	3	3	1	..	..	..	..	..	16	5	16	5	..	..
Chicken-pox	..	..	..	..	..	..	..	..	..	..	10	6	11	6	..	..
Leprosy	2	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..
Typhus fever	..	..	..	..	..	..	..	..	..	..	5	3	5	3	..	..
Scarlet fever	1	2	1	1	3	2	18	9	7	11	122	142	128	142	7	1
Measles	9	10	10	13	10	12	20	18	19	22	284	269	289	274	7	
Whooping-cough	..	..	..	..	..	..	..	..	1	..	6	5	8	10	..	..
Total by sexes	13	12	14	17	14	14	38	27	27	33	445	430	459	440	14	1
Total	31		31		28		65		60		875		899		31	

SMALL-POX.

CLASSES.	City.		Quarantine.		Public Hospitals.		Other Places.		White.		Colored.		Adults.		Minors.		Native.		Foreign.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Remaining Jan. 1...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Admitted.....	3	2	13	3	..	..	..	..	16	5	..	..	14	4	2	1	3	..	13	5	21
Total treated.	3	2	13	3	..	..	..	..	16	5	..	..	14	4	2	1	3	..	13	5	21
Died.....	..	..	1	..	..	..	..	..	1	..	.	..	1	..	..	..	..	..	1	..	1
Discharged.....	3	2	12	3	..	..	..	..	15	..	..	..	13	4	2	1	3	..	12	5	20
Remaining Dec. 31..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Mortality, per cent., 4 16-21.

LEPROSY.

Remaining Jan. 1....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Admitted.....	2	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	2	..	2
Total treated..	2	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	2	..	2
Died.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Discharged.....	2	..	..	..	..	..	..	..	..	..	2	..	2	..	..	..	..	..	2	..	2
Remaining Dec. 31..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TYPHUS FEVER.

Remaining Jan. 1....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Admitted.....	3	3	1	..	1	..	..	..	5	3	..	..	4	2	1	1	..	..	5	3	8
Total treated.	3	3	1	..	1	..	..	..	5	3	..	..	4	2	1	1	..	..	5	3	8
Died.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Discharged.....	3	3	1	..	1	..	..	..	5	3	..	..	4	2	1	1	..	..	5	3	8
Remaining Dec. 31..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Scarlet Fever.

Classes.	City.		Quarantine.		Public Hospitals.		Other Places.		White.		Colored.		Adults.		Minors.		Native.		Foreign.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Remaining Jan. 1...	3	..	..	..	3	..	..	..	6	..	..	..	4	..	2	..	..	..	6	..	6
Admitted.....	59	82	9	3	52	56	2	1	121	137	1	5	60	67	62	75	73	82	49	60	264
Total treated..	62	82	9	3	55	56	2	1	127	137	1	5	64	67	64	75	73	82	55	60	270
Died.....	11	11	3	2	18	10	..	..	32	23	..	..	7	1	25	22	24	19	8	4	55
Discharged.....	47	69	6	1	34	39	2	..	88	104	1	5	55	62	34	47	43	56	46	53	199
Remaining Dec. 31..	4	2	..	..	3	7	..	1	7	10	..	..	2	4	5	6	6	7	1	3	16

Mortality, per cent., 20 10-27.

Measles.

Remaining Jan. 1...	2	2	1	5	2	..	..	..	5	4	..	1	3	1	2	4	1	2	4	3	10
Admitted.....	67	98	124	102	91	69	2	..	282	265	2	4	65	64	219	205	119	116	165	153	553
Total treated.	69	100	125	105	93	69	2	..	287	269	2	5	68	65	221	209	120	118	169	156	563
Died.....	13	11	13	12	19	11	..	..	45	34	..	..	3	1	42	33	29	19	16	15	79
Discharged.....	51	86	111	90	73	57	2	..	235	228	2	5	63	63	174	170	89	98	148	135	470
Remaining Dec. 31..	5	3	1	3	1	1	..	..	7	7	..	..	2	1	5	6	2	1	5	6	14

Mortality, per cent., 14+.

Whooping-cough.

Remaining Jan. 1....	..	5	..	..	2	..	..	..	2	5	..	..			2	5	2	5	..	..	
Admitted.....	3	1	..	..	3	4	..	..	6	5	..	..			6	4	6	4	..	1	11
Total treated.	3	6	..	..	5	4	..	..	8	10	..	..			8	9	8	9	..	1	11
Died.....	1	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	1
Discharged.....	2	6	..	..	5	4	..	..	7	10	..	..	..	1	7	9	7	9	..	1	10
Remaining Dec. 31..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Mortality, per cent., 6—.

CHICKEN-POX.

CLASSES.	City.		Quarantine.		Public Hospitals.		Other Places.		White.		Colored.		Adults.		Minors.		Native.		Foreign.		Total.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Remaining Jan. 1....	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	..	1	..	.	..	1
Admitted.....	2	..	3	2	5	4	..	..	10	6	..	..	1	..	9	6	7	4	3	2	16
Total treated.	2	..	3	2	6	4	..	..	11	6	..	..	1	..	10	6	8	4	3	2	17
Died	1	..	..	1	2	..	..	..	3	1	..	..	1	..	2	1	3	..	..	1	4
Discharged.....	1	..	3	1	4	4	..	..	8	5	..	..	..	..	8	5	5	4	3	1	13
Remaining Dec. 31..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

Mortality, per cent., 23 9-17.

TOTAL CASES.

Remaining Jan. 1....	5	7	1	3	8	..	..	..	14	9	..	1	7	1	7	9	4	7	10	3	24
Admitted.....	139	186	150	110	152	133	4	1	440	421	5	9	146	138	299	292	208	206	237	224	875
Total treated.	144	193	151	113	160	133	4	1	454	430	5	10	153	139	306	301	212	213	247	227	899
Died	26	22	17	15	39	21	..	..	82	58	..	..	12	2	70	56	57	38	25	20	140
Discharged.....	109	166	133	95	117	104	4	..	358	355	5	10	137	132	226	233	147	167	296	198	728
Remaining Dec. 31..	9	5	1	3	4	8	..	1	14	17	..	..	4	5	10	12	8	8	6	9	31

Mortality, per cent., 16.

MOTHERS AND CHILDREN ACCOMPANYING.

Remaining Jan. 1....	..	1	..	1	..	..	..	..	..	2	..	..	..	2	..	..	..	..	..	2	2
Admitted	4	25	5	108	..	6	..	..	9	139	..	..	4	137	5	2	..	8	9	131	148
Total.....	4	26	5	109	..	6	..	..	9	141	..	..	4	139	5	2	..	8	9	133	150
Discharged.....	4	25	5	108	..	5	..	..	9	138	..	..	4	136	5	2	..	7	9	131	147
Remaining Dec. 31..	..	1	..	1	..	1	..	..	..	3	..	..	..	3	..	..	..	1	..	2	3

Table Showing Cases Treated for the United States Immigration

Diseases.	Remaining Dec. 31, 1890.		Jan.		Feb.		March.		April.		May.		June.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Measles	1	3	2	3	12	10	6	2	12	9	4	4	19	13
Scarlet fever	..	..	..	..	..	..	3	..	1	2	..	..	..	1
Chicken-pox	..	..	..	..	..	..	1	..	1	2	..	..	..	..
Mothers accompanying	..	1	..	2	..	10	..	5	..	14	..	4	..	21
Children accompanying	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total by sexes	1	4	2	5	12	20	10	7	14	27	4	8	19	35
Total	5		7		32		17		41		12		54	

Mortality, per cent., 13+.

Table Showing Number of Deaths

Diseases.	Total.	Scarlatina (malignant).	Rubeola (hæmorrhagic).	Diphtheria.	Bronchitis.	Broncho-pneumonia.	Pneumonia.	Enteritis.	Gastro-enteritis.	Croupous Laryngitis.	Croup.	Acarus Lumb.	Nephritis.	Cancrum Oris.
Small-pox	1	..	..	..	..	..	1	..	..	..	..	..	..	..
Scarlet fever	55	..	3	21	3	5	3	2	..	5	..	1	1	3
Measles	79	2	..	20	16	13	4	14	1	7	1	2	..	2
Whooping-cough	1	..	..	..	1	..	..	..	..	..	..	..	..	..
Chicken-pox	4	..	..	2	2	..	..	1	..	..	..	..	..	..
Total	140	2	3	43	22	18	8	17	1	12	1	3	1	5

Service, 1891, *Received from Barge Office, New York City.*

JULY.		AUGUST.		SEPT.		OCT.		NOV.		DEC.		TOTAL TREATED.		DIED.		REMAINING DEC. 31, 1891.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
20	16	3	6	7	7	8	5	14	14	12	12	120	104	13	12	1	3
..	..	..	..	1	..	..	..	..	..	1	..	6	3	3	2	..	..
..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	1	..	..
..	18	..	4	..	3	..	4	..	8	..	10	..	104	..	..	..	1
..	1	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..
20	35	3	10	8	10	8	9	14	22	13	23	198	215	16	15	1	4
55		13		18		17		36		36		343		31		5	

from Various Causes, Year 1891.

Peritonitis.	Laryngeal Diphtheria.	Cholera Infantum.	Pyæmia.	Heart Failure.	Marasmus.	Dentition.	Syphilis.	Otitis Media.	Tuberculosis.	Asthenia.	General Adenitis.	Meningitis, with Fracture of Base of Skull.	Cerebral Hæmorrhage.	Phthisis Pulmonalis.	Cellulitis.	Hæmorrhagic.	Malignant.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	1	1	..	..	..	1	1	1	1	1	1	..	..	..	6
2	2	1	1	..	4	2	1	..	..	..	..	..	..	1	1	3	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..
3	2	1	2	1	4	3	2	1	1	1	1	1	1	1	1	3	6

Table Showing Complications

NOTE.—In two cases of leprosy and two cases of

DISEASES.	TOTAL CASES TREATED.	SCARLATINA.		RUBEOLA.		WHOOPING-COUGH.		CHICKEN-POX.		DIPHTHERIA.		BRONCHITIS.	
		Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
Small-pox	21	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet fever	270	..	..	85	3	1	..	2	..	2	21	..	3
Measles	563	23	2	..	..	1	..	1	..	9	20	20	16
Whooping-cough	18	1	..	1	..	..	..	..	..	3	..	..	1
Chicken-pox	17	1	..	1	..	..	..	..	..	..	2	..	2
Total	899	25	2	87	3	2	..	3	..	14	43	20	22

DISEASES.	LARYNGEAL DIPHTHERIA.		CHOLERA INFANTUM.		PYÆMIA.		HEART FAILURE.		MARASMUS.		DENTITION.		SYPHILIS.	
	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
Small-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet fever	..	..	..	..	..	1	..	1	..	..	..	..	..	..
Measles	..	2	..	1	..	1	..	..	2	4	2	2	..	1
Whooping-cough	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Total	..	2	..	1	..	2	..	1	2	4	2	3	..	2

DISEASES.	MISCARRIAGE.		SCROFULA.		ECZEMA.		OPTHALMIA.		POTTS' DISEASE.		TONSILITIS.		FAVUS.	
	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
Small-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet fever	1	..	1	..	1	..	1	..	..	..	1	..	..	..
Measles	..	..	1	..	2	..	1	..	1	..	1	..	2	..
Whooping-cough	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	1	..	2	..	3	..	2	..	1	..	2	..	2	..

of Total Cases Treated.

typhus fever treated no complications occurred.

Broncho-Pneumonia.		Pneumonia.		Enteritis.		Gastro-enteritis.		Croupous Laryngitis.		Croup.		Acarus Lumb.		Nephritis.		Cancrum Oris.		Peritonitis.	
Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	5	1	3	..	2	..	..	..	5	..	..	..	1	14	1	..	3	..	1
3	13	..	4	5	14	..	1	5	7	3	1	..	2	4	..	5	2	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	18	1	8	5	17	..	1	5	12	3	1	..	3	18	1	5	5	..	3

Otitis.		Otitis Media.		Tuberculosis.		Asthenia.		General Adenitis.		Meningitis with Fracture of Base of Skull.		Cerebral Hæmorrhage.		Phthisis Pulmonalis.		Cellulitis.		Rheumatism.	
Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	..	1	1	1	..	1	..	1	..	1	..	1	..	..	..	..	5	..
10	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	1	3	1	..	1	..	1	..	1	..	1	..	1	..	1	5	..

Malaria.		Talipes Equinus.		Mastoid Disease.		Stomatitis.		Tubercular Synovitis.		Hæmatophilia.		RöthelN.		Acne.		Hæmorrhagic.		Malignant.	
Recovered.	Died.	Recovered	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	6
1	..	..	..	1	..	..	..	..	..	..	..	18	..	1	..	1	3	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	1	..	1	..	1	..	1	..	1	..	18	..	1	..	1	3	..	6

Table Showing Complications

NOTE.—In two cases of leprosy and two cases of

Diseases.	Total Cases Treated.	Scarlatina.		Rubeola.		Whooping-cough.		Chicken-pox.		Diphtheria.		Bronchitis.	
		Recovered.	Died.	Recovered	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
Small-pox	21	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet fever	270	..	..	85	3	1	..	2	..	2	21	..	3
Measles	563	23	2	..	..	1	..	1	..	9	20	20	16
Whooping-cough	18	1	..	1	..	..	..	..	..	3	..	..	1
Chicken-pox	17	1	..	1	..	..	..	..	..	..	2	..	1
Total	899	25	2	87	3	2	..	3	..	14	43	20	22

Diseases.	Laryngeal Diphtheria.		Cholera Infantum.		Pyæmia.		Heart Failure.		Marasmus.		Dentition.		Syphilis.	
	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
Small-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet fever	..	..	..	..	..	1	..	1	..	..	..	..	..	..
Measles	..	2	..	1	..	1	..	..	2	4	2	2	..	1
Whooping-cough	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Total	..	2	..	1	..	2	..	1	2	4	2	3	..	2

Diseases.	Miscarriage.		Scrofula.		Eczema.		Opthalmia.		Potts' Disease.		Tonsilitis.		Favus.	
	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
Small-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet fever	1	..	1	..	1	..	1	..	..	..	1	..	..	..
Measles	..	..	1	..	2	..	1	..	1	..	1	..	2	..
Whooping-cough	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	1	..	2	..	3	..	2	..	1	..	2	..	2	..

of Total Cases Treated.

typhus fever treated no complications occurred.

Broncho-Pneumonia.		Pneumonia.		Enteritis.		Gastro-enteritis.		Croupous Laryngitis.		Croup.		Acarus Lumb.		Nephritis.		Cancrum Oris.		Peritonitis.	
Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	5	1	3	..	2	..	..	..	5	..	..	..	1	14	1	..	3	..	1
3	13	..	4	5	14	..	1	5	7	3	1	..	2	4	..	5	2	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3	18	1	8	5	17	..	1	5	12	3	1	..	3	18	1	5	5	..	3

Otitis.		Otitis Media.		Tuberculosis.		Asthenia.		General Adenitis.		Meningitis with Fracture of Base of Skull.		Cerebral Hæmorrhage.		Phthisis Pulmonalis.		Cellulitis.		Rheumatism.	
Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	..	1	1	1	..	1	..	1	..	1	..	1	..	..	..	..	5	..
10	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	..	..	1	3	1	..	1	..	1	..	1	..	1	..	1	..	1	5	..

Malaria.		Talipes Equinus.		Mastoid Disease.		Stomatitis.		Tubercular Synovitis.		Hæmatophilia.		Rötheln.		Acne.		Hæmorrhagic.		Malignant.	
Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.	Recovered.	Died.
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	..	6
1	..	..	..	1	..	..	..	..	..	..	..	18	..	1	..	1	3	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	1	..	1	..	1	..	1	..	1	..	18	..	1	..	1	3	..	6

Table Showing Ratio of Mortality at Various Ages During Year 1891.

	Sexes.	Ages.																					
		Under 1 Year.							1 to 3 Years.							3 to 5 Years.							
		Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.	Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.	Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.
Small-pox.....	Males.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..
	Females...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leprosy.....	Males.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Females...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Typhus fever.	Males.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Females...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet fever..	Males.....	..	1	1	1	..	..	..	..	13	13	6	7	..	54	1	30	31	16	12	3	39—
	Females...	..	1	1	1	..	..	..	..	17	17	5	8	4	47—	..	30	30	17	11	2	37—
Measles.....	Males.....	..	18	18	10	6	2	33+	..	77	77	60	17	..	21+	..	57	57	41	15	1	26+
	Females...	..	21	21	14	7	..	33+	..	77	77	54	19	4	26—	2	54	56	51	5	..	9—
Whooping-cough.	Males.....	..	1	1	1	..	..	..	1	1	2	1	1	..	50	1	..	1	1	..	..	..
	Females...	..	..	..	..	..	..	..	2	..	2	2	..	..	..	2	2	4	4	..	..	..
Chicken-pox..	Males.....	..	..	..	..	..	..	..	..	4	4	4	..	..	..	..	3	3	1	2	..	66⅔
	Females...	..	1	1	1	..	..	..	..	4	4	3	1	..	25	..	1	1	1	..	..	..
By sexes.....	Males.....	..	20	20	12	6	2	30	1	95	96	71	25	..	26+	2	91	93	60	29	4	31+
	Females...	..	23	23	16	7	..	30+	2	98	100	64	28	8	28	4	87	91	73	16	2	18—
Total...	.....	..	43	43	28	13	2	30+	3	193	196	135	53	8	27+	6	178	184	133	45	6	24+

Table Showing Ratio of Mortality at Various Ages During Year 1891—(Continued).

	Sexes.	Ages. 5 to 10 Years. Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.	10 to 15 Years. Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.	15 to 25 Years. Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.
Small-pox	Males	..	..	..	..	..	..	..	..	2	2	2	..	..	..	..	5	5	5	..	..	..
	Females	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..
Leprosy	Males	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Females	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Typhus fever	Males	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	2	2	2	..	..	..
	Females	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	1	1	1	..	..	..
Scarlet fever	Males	1	17	18	10	6	2	33⅓	..	2	2	1	1	..	50	3	40	43	36	5	2	12—
	Females	..	18	18	15	3	..	17—	..	13	13	12	1	..	8—	..	43	43	40	..	3	..
Measles	Males	2	54	56	50	4	2	7+	..	15	15	15	..	..	..	3	48	51	47	2	2	4—
	Females	2	48	50	46	2	2	4	..	9	9	9	..	..	..	1	45	46	44	1	1	2+
Whooping-cough	Males	..	4	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Females	1	2	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	Males	1	2	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Females	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
By sexes	Males	4	78	82	68	10	4	12+	..	19	19	18	1	..	5+	6	95	101	90	7	4	7—
	Females	3	69	72	65	5	2	7—	..	23	23	22	1	..	4+	1	90	91	86	1	4	1+
Total	.....	7	147	154	133	15	6	10—	..	42	42	40	2	..	5—	7	185	192	176	8	8	4+

Table Showing Ratio of Mortality at Various Ages During Year 1891—(Continued).

	Sexes.	Ages. 25 to 40 Years. Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.	40 Years and Over. Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.	Total. Remaining.	Admitted.	Total.	Discharged.	Died.	Remaining.	Mortality.
Small-pox	Males	..	5	5	4	1	..	20	..	3	3	3	..	..	..	..	16	16	15	1	..	6⅔
	Females	..	1	1	1	..	..	..	..	2	2	2	..	..	..	..	5	5	5	..	..	..
Leprosy	Males	..	2	2	2	..	..	..	..	..	..	..	..	..	..	..	2	2	2	..	..	..
	Females	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Typhus fever	Males	..	2	2	2	..	..	..	..	..	..	..	..	..	..	..	5	5	5	..	..	..
	Females	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	3	3	3	..	..	..
Scarlet fever	Males	1	17	18	17	1	..	6	..	2	2	2	..	..	..	6	122	128	89	32	7	25
	Females	..	18	18	17	..	1	..	..	2	2	2	..	..	..	..	142	142	109	23	10	16+
Measles	Males	..	14	14	13	1	..	7+	..	1	1	1	..	..	..	5	284	289	237	45	7	16—
	Females	..	13	13	13	..	..	..	..	2	2	2	..	..	..	5	269	274	233	34	7	12+
Whooping-cough	Males	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	6	8	7	1	..	12½
	Females	..	1	1	1	..	..	..	..	..	..	..	..	..	..	5	5	10	10	..	..	..
Chicken-pox	Males	..	1	1	..	1	..	100	..	..	..	..	..	..	..	1	10	11	8	3	..	27$\frac{3}{11}$
	Females	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	6	5	1	..	16⅔
By sexes	Males	1	41	42	38	4	..	10—	..	6	6	6	..	..	..	14	445	459	363	82	14	18+
	Females	..	33	33	32	..	1	..	..	7	7	7	..	..	..	10	430	440	365	58	17	13+
Total		1	74	75	70	4	1	5+	..	13	13	13	..	..	..	24	875	899	728	140	31	16—

RECAPITULATION.

DISEASES.	REMAINING JANUARY 1.		ADMITTED.		TOTAL TREATED.		DIED.		DISCHARGED.		REMAINING DECEMBER 31.		Mortality, Per Cent.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Small-pox	..	..	16	5	16	5	1	..	15	5	..	..	.05—
Chicken-pox	1	..	10	6	11	6	3	1	8	5	..	..	.24—
Leprosy	..	..	2	..	2	..	..	..	2	..	..	..	....
Typhus fever	..	..	5	3	5	3	..	..	5	3	..	..	....
Scarlet fever	6	..	122	142	128	142	32	23	89	109	7	10	.20+
Measles	5	5	284	269	289	274	45	34	237	233	7	7	.14+
Whooping-cough	2	5	6	5	8	10	1	..	7	10		..	.06—
By Sexes	14	10	445	430	459	440	82	58	363	365	14	17	.18— .13+
Total	24		875		899		140		728		31		.16—

Average daily census for the year—

Patients	50.56
Help	42.11
Total	92.67

Number of trips steamer "Franklin Edson" 436

Total number of dead bodies received during year 42

As compared with last year, we find a large increase in the census. In 1890, 494 cases were treated, while the number in 1891 is 899, an increase of 405, which has been largely among the measles cases. Just about one-half of the cases of measles treated were received from the U. S. Immigration Service. These patients had accompanying them mothers and children to the number of 106.

Among the scarlet fever patients treated about 15 per cent. have been children, the overflow from the children's wards at the Willard Parker Hospital. Of 113 cases of scarlet fever and measles combined that were treated, 70 were admitted with that diagnosis, 10 as measles, 20 as scarlet fever exposed to measles, and 13 as measles exposed to scarlet fever. The complications accompanying these cases were remarkably numerous and severe. The mortality table shows a marked decrease of the ratio of death in all cases treated, as the age of the patient increases. The largest number of patients treated under any one class as tabulated was 196 at ages from one to three years, the mortality was 27 per cent. The next largest class was in age fifteen to twenty-five years, having 192 cases with a mortality of only 4 per cent.

Looking for the actual causes of death, we find that diphtheria infection in its various forms hea the list as a complication, closely followed by diseases of the respiratory organs, bronchitis, bronch pneumonia or pneumonia, while inflammations of the digestive tract are third. Fifty differe complications have been noted in the treatment of the cases, several of them occurring mar times, others only once. These fifty complications have occurred among about one-half of th total number of cases treated, leaving the disease to run its normal course in the other half.

The total cases treated are divided as follows: Small-pox, 21; scarlet fever, 270; measle 563; whooping-cough, 18; chicken-pox, 17; total, 899. Mothers and children accompanying 150. Grand total of 1,049 cases.

Respectfully submitted,

F. R. PERCIVAL, M. D., Resident Physician.

EMMONS CLARK, *Secretary:*

SIR—I have the honor to submit the following report relating to the tenement-house popul tion of the city.

A preliminary statement is necessary, to indicate the material and the methods used in th preparation of the accompanying tables.

THE TENEMENT-HOUSE CENSUS.

With the beginning of the year 1891, the Sanitary Police began the semi-annual inspection c tenement-houses required by the tenement-house act. As they visited each house, they mad memoranda, in books provided for the purpose, of the number of persons living in the hous enumerating separately those who were five years of age and upwards and those who were und five, the number of families, the number of vacant apartments, and if any tenants were engage in any regular occupation at home (so-called home-workers), the character of the occupation, th number of persons in such family, and the number of cases of sickness.

This census included every dwelling-house in the City of New York, occupied by more tha two families living independently of each other, with the exception of certain first-class apartment houses, which were noted separately. The large number of persons living in private houses, hotel boarding-houses, lodging-houses and public institutions were, of course, not included.

The general result of this census was as follows:

Total number of tenement-houses	37,35
Total number of vacant apartments	32,16
Total number of families	276,56
Total population	1,225,42
Total population, 5 years of age and over	1,064,71
Total population, under 5 years of age	160,70

In addition to the houses included in the foregoing table, were found:

First-class apartment-houses	14
Total number of vacant apartments	53
Number of families living in them	2,47

Total population	9,793
Total population, 5 years of age and over	9,292
Total population, under 5 years of age	501

These houses are not included among those considered in this report.

As the particulars regarding each house were reported by street and number, and the deaths occurring in the city are also kept by street and number, it required only time and patience to prepare tables combining the population and the corresponding deaths, so as to show the comparative mortality in different parts of the city.

As the officers began their work in January and did not finish until September, it might, without explanation, be inferred that the census was practically worthless, as extending over a period of eight months and no attempt being made to ascertain the population at any given date. And this opinion is, to a certain extent, true if the census is looked upon merely as a census of the tenement-house population. The total population of all the tenement-houses in the city must have increased a good deal during the progress of this work, and if the annual increase of population in the city as a whole is taken at fifty thousand, and three-quarters of this is given to the tenement-houses, the figures given may be fifteen thousand or twenty thousand out of the way, probably too small. But the value of the following tables does not depend upon the enumeration of the entire tenement-house population accurately at any fixed date; it depends upon the fact that for the population given in the tables, the comparison of deaths with population has been made house by house, and it is a matter of experience with the Department that the population of any particular house does not vary very much within a few months, unless very exceptional circumstances arise. As one family moves out, another moves in, and even the moving takes place largely within a restricted neighborhood, to which tenants become attached and which they are often disinclined to leave. So the increase of the tenement-house population comes about rather by the overflow into new houses than by overcrowding of the old.

Therefore, although the census, as it stands, probably gives the entire tenement-house population on September 1, within a few thousands, I prefer to consider the following tables, not as showing the actual death-rates among the tenement-house population, but the death-rates in 37,538 particular houses, sheltering 1,225,421 persons.

DISTRICTS.

In order to ascertain local sanitary conditions it was necessary to divide the city into districts, and as this had already been done in connection with the United States census of 1890, it was decided to adopt the subdivisions of the wards made at that time.

These small districts, one hundred and eleven in number, were located with a view to have each one, so far as possible, represent some peculiar condition which might affect its healthfulness, e. g., some districts include slaughter-houses, others gas-houses, others large areas of former marshy land or land reclaimed from the rivers, some a large negro population, or German, or Italian, or Russian Jewish, some a wholly tenement-house population, others largely private houses, and others chiefly business property.

The following table gives the boundaries of the wards and the districts, the latter being indicated by capital letters, and the leading characteristic of each district being briefly stated:

Ward.	District.	Boundaries.	Predominating Characteristic.
First	....	South of Liberty street and Maiden Lane:	
	A	West of Broadway and State street	Made land.
	B	East of Broadway and State street	"
Second	....	Between Liberty street and Maiden Lane on the south, and Spruce street, Ferry street and Peck Slip on the north, east of Broadway and Park Row	Business; made land.
Third	....	Between Liberty and Reade streets, west of Broadway	Business.
Fourth	....	Between Spruce street, Ferry street and Peck Slip on the southwest, and Catharine street on the northeast, southerly of Park Row:	
	A	South of New Chambers street and James Slip	Made land.
	B	North of New Chambers street and James Slip	Marsh land; Italians.
Fifth	....	Reade to Canal street, west of Broadway:	
	A	West of Hudson street	Marsh land.
	B	East of Hudson street	"
Sixth	....	Below Canal street, between Bowery, Park Row and Broadway:	
	A	West of Centre street	Business.
	B	Between Centre and Baxter streets	Made land; Italians, Jews.
	C	East of Baxter street	Italians, Chinese.
Seventh	....	Between Catharine and Grand streets, Division street and East river:	
	A	Between Catharine and Jefferson streets, south of Monroe street	Marsh land.
	B	Between Jefferson and Grand streets, south of Monroe street	"
	C	Between Catharine and Jefferson streets, north of Monroe street	Jews.
	D	Between Jefferson and Grand streets, north of Monroe street	"
Eighth	....	Between Canal and Houston streets, west of Broadway:	
	A	West of Varick street	Marsh land.
	B	East of Varick street, south of Spring street	Marsh land; Italians, negroes
	C	East of Varick street, north of Spring street	French, Italians.
Ninth	....	Between Houston and Fourteenth streets, west of Sixth avenue, Carmine street, Bleecker street, Cottage place:	
	A	West of Hudson street, below West Eleventh street	
	B	East of Hudson street, below Charles street and Greenwich avenue	
	C	West of Hudson street, above West Eleventh street	Made land.
	D	East of Hudson street, above Charles street and Greenwich avenue	
Tenth	....	Between Division and Rivington streets, Norfolk street and Bowery:	
	A	South of Grand street	Russian Jews.
	B	North of Grand street	Russian Jews and Germans.

Ward.	District.	Boundaries.	Predominating Characteristic.
Eleventh.....	....	Between Rivington and Fourteenth streets, east of Avenue B and Clinton street :	
	A	Between Avenues B and D, south of Second street.....	Germans, Bohemians.
	B	Between Avenues B and D, Second and Eighth streets....	Marsh land.
	C	Between Rivington and Eighth streets, east of Avenue D.	"
	D	Between Eighth and Fourteenth streets, east of Avenue B.	Marsh land ; gas-houses.
Twelfth.....	....	Manhattan Island, north of Eighty-sixth street :	
	A	West Eighty-sixth to Ninety-fourth street	
	B	Between Eighty-sixth and Ninety-fifth streets, Fifth and Third avenues.....	
	C	Between Eighty-sixth and Ninety-fifth streets, Third and First avenues	Marsh land.
	D	Between Eighty-sixth and Ninety-fifth streets, east of First avenue.....	"
	E	Between West Ninety-fourth and One Hundred and Second streets.....	
	F	Between Ninety-fifth and One Hundred and Fifth streets, Fifth and Third avenues	
	G	Between Ninety-fifth and One Hundred and Fifth streets, east of Third avenue.....	Marsh land ; gas-houses.
	H	Between West One Hundred and Second and One Hundred and Tenth streets.....	
	I	Between East One Hundred and Fifth and One Hundred and Tenth streets.....	Marsh land.
	K	Between One Hundred and Tenth and One Hundred and Twentieth streets, west of Seventh avenue	Suburban.
	L	Between One Hundred and Tenth and One Hundred and Twentieth streets, Seventh and Fourth avenues	
	M	Between One Hundred and Tenth and One Hundred and Twentieth streets, east of Fourth avenue.....	Gas-houses ; Italians.
	N	Between One Hundred and Twentieth and One Hundred and Thirtieth streets, west of Fifth avenue.....	Suburban.
	O	Between One Hundred and Twentieth and One Hundred and Thirtieth streets, east of Fifth avenue.....	
	P	Between One Hundred and Thirtieth and One Hundred and Fortieth streets, west of Eighth avenue.....	Suburban.
	R	Between One Hundred and Thirtieth and One Hundred and Fortieth streets, east of Eighth avenue.....	
	S	North of One Hundred and Fortieth street.....	Suburban.
Thirteenth.....	....	Between Division, Grand and Rivington streets, east of Norfolk street :	
	A	West of Willett street.....	
	B	East of Willett street	
Fourteenth	....	Between Canal and Houston streets, Broadway and Bowery :	
	A	West of Mulberry street	Italians.
	B	East of Mulberry street.....	"
Fifteenth.....	....	Houston to Fourteenth street, between Fourth avenue and the Bowery on the east, and Sixth avenue, Carmine and Bleecker streets, and Cottage place on the west :	
	A	West of Wooster street, south of Fourth street.....	Italians, French, negroes.
	B	East of Wooster street, south of Fourth street.....	French.
	C	West of University place, north of Fourth street.....	
	D	East of University place, north of Fourth street.....	Business.

Ward.	District.	Boundaries.	Predominating Characteristic.
Sixteenth.....	....	Between Fourteenth and Twenty-sixth streets, west of Sixth avenue :	
	A	Between Fourteenth and Twentieth streets, west of Ninth avenue.....	Made land ; gas-houses.
	B	Between Fourteenth and Twentieth streets, east of Ninth avenue.....	
	C	Between Twentieth and Twenty-sixth streets, west of Ninth avenue.....	Made land.
	D	Between Twentieth and Twenty-sixth streets, east of Ninth avenue.....	
Seventeenth.....	....	Between Rivington and Fourteenth streets, Fourth avenue and Bowery, and Avenue B and Clinton street :	
	A	Between Rivington and Fourth streets, west of First avenue	Germans.
	B	Between Rivington and Fourth streets, east of First avenue	"
	C	Between Fourth and Ninth streets, west of First avenue..	"
	D	Between Fourth and Ninth streets, east of First avenue...	"
	E	Between Ninth and Fourteenth streets, west of First avenue	
	F	Between Ninth and Fourteenth streets, east of First avenue	Germans.
Eighteenth	....	Fourteenth to Twenty-sixth streets, east of Sixth avenue :	
	A	Between Fourteenth and Twentieth streets, Sixth and Fourth avenues.....	
	B	Between Fourteenth and Twentieth streets, Fourth and First avenues.....	
	C	Between Fourteenth and Twenty-sixth streets, east of First avenue.....	Made land ; gas-houses.
	D	Between Twentieth and Twenty-sixth streets, Sixth and Fourth avenues.....	
	E	Between Twentieth and Twenty-sixth streets, Fourth and First avenues.....	
Nineteenth.....	....	Between Fortieth and Eighty-sixth streets, east of Sixth avenue :	
	A	Between Fortieth and Fiftieth streets, Sixth and Fourth avenues.....	Fine residences.
	B	Between Fortieth and Fiftieth streets, Fourth and Second avenues.....	
	C	Between Fortieth and Fiftieth streets, east of Second avenue.....	Slaughter-houses.
	D	Between Fiftieth and Fifty-ninth streets, Sixth and Fourth avenues.....	Fine residences.
	E	Between Fiftieth and Fifty-ninth streets, Fourth and Second avenues.....	
	F	Between Fiftieth and Fifty-ninth streets, east of Second avenue.....	
	G	Between Fifty-ninth and Seventieth streets, Fifth and Third avenues.....	Fine residences.
	H	Between Fifty-ninth and Seventieth streets, Third and First avenues.....	
	I	Between Fifty-ninth and Seventieth streets, east of First avenue.....	
	K	Between Seventieth and Seventy-sixth streets, Fifth and Third avenues.....	Fine residences.
	L	Between Seventieth and Seventy-sixth streets, Third and First avenues.....	
	M	Between Seventieth and Seventy-sixth streets, east of First avenue.....	
	N	Between Seventy-sixth and Eighty-sixth streets, Fifth and Third avenues.....	Fine residences.
	O	Between Seventy-sixth and Eighty-sixth streets, Third and First avenues.....	
	P	Between Seventy-sixth and Eighty-sixth streets, east of First avenue.....	

Ward.	District.	Boundaries.	Predominating Characteristic.
Twentieth.....	....	Between Twenty-sixth and Fortieth streets, west of Sixth avenue:	
	A	Between Twenty-sixth and Thirty-first streets, west of Ninth avenue	
	B	Between Twenty-sixth and Thirty-first streets, east of Ninth avenue	
	C	Between Thirty-first and Thirty-sixth streets, west of Ninth avenue	
	D	Between Thirty-first and Thirty-sixth streets, east of Ninth avenue	
	E	Between Thirty-sixth and Fortieth streets, west of Ninth avenue	Slaughter-houses.
	F	Between Thirty-sixth and Fortith streets, east of Ninth avenue	
Twenty-first....	....	Between Twenty-sixth and Fortieth streets, east of Sixth avenue:	
	A	Between Twenty-sixth and Thirty-first streets, Sixth and Fourth avenues	Fine residences.
	B	Between Twenty-sixth and Thirty-first streets, Fourth and Second avenues	
	C	Between Twenty-sixth and Thirty-third streets, east of Second avenue	
	D	Between Thirty-first and Thirty-sixth streets, Sixth and Fourth avenues	Fine residences.
	E	Between Thirty-first and Thirty-sixth streets, Fourth and Second avenues	
	F	Between Thirty-sixth and Fortieth streets, Sixth and Fourth avenues	
	G	Between Thirty-sixth and Fortieth streets, Fourth and Second avenues	
	H	Between Thirty-third and Fortieth streets, east of Second avenue	Made land.
Twenty-second.	....	Between Fortieth and Eighty-sixth streets, west of Sixth avenue:	
	A	Between Fortieth and Fiftieth streets, west of Tenth avenue	Gas-houses; slaughter-houses
	B	Between Fortieth and Fiftieth streets, Tenth and Eighth avenues	
	C	Between Fortieth and Fiftieth streets, Eighth and Sixth avenues	
	D	Between Fiftieth and Fifty-seventh streets, west of Tenth avenue	
	E	Between Fiftieth and Fifty-ninth streets, Tenth and Eighth avenues	
	F	Between Fiftieth and Fifty-ninth streets, Eighth and Sixth avenues	
	G	Between Fifty-seventh and Sixty-fourth streets, west of Tenth avenue	Slaughter-houses.
	H	Between Sixty-fourth and Seventy-fourth streets, west of Tenth avenue	
	I	Between Fifty-ninth and Sixty-eighth streets, Tenth and Eighth avenues	
	K	Between Sixty-eighth and Seventy-seventh streets, Tenth and Eighth avenues	
	L	Between Seventy-fourth and Eighty-sixth streets, west of Tenth avenue	
	M	Between Seventy-seventh and Eighty-sixth streets, Tenth and Eighth avenues	
Twenty-third....	....	North of Harlem river, below One Hundred and Fifty-fifth street	Suburban.
Twenty-fourth..	....	North of Harlem river, above One Hundred and Fifty-fifth street	Suburban.

The Twenty-third and Twenty-fourth Wards are really divided by a straight line from High Bridge to the Bronx river, at about One Hundred and Seventieth street, but as the police districts were divided at One Hundred and Fifty-fifth street, that division has been retained for these tables, although what are given as Wards 23 and 24 in the list just completed do not correspond exactly with Wards 23 and 24 on the map of the city.

It will, of course, be understood that the actual boundaries of districts are along the centre the streets given above as the dividing lines.

As the police inspection was made by only thirty-three officers, the city was divided for th inspection into only thirty-three districts, and the time required for the redistribution of t population and the deaths according to the boundaries of the sanitary districts, as given abov accounts for the somewhat tardy appearance of this report.

RESULTS OF THE TABULATION.

In the houses under consideration there were in 1891, 29,123 deaths, giving a death-rate p 1,000 living of 23.77. The number of deaths in tenement-houses given in the annual report 28,215, but this total represents the deaths that actually occurred in the houses, while the form number represents the deaths that occurred in the houses plus deaths redistributed to the hous which actually occured in hospitals and other public institutions. The 28,215 deaths also inclu many deaths in the large apartment-houses, which are expressly excluded from consideration this report. Out of the total of 9,377 deaths in institutions, there were 3,426 that could not referred to the residence before admission, no street address being given on the certificate of deat A large proportion of these, like the deaths in the foundling and maternity asylums, are deaths persons who were born in the institutions, and therefore had no other address. If, however, w assume that the entire number of undistributed deaths belong to the tenement-houses, we shou have a total of 32,549, which would give us a tenement death-rate of 26.56. An exhaustiv analysis of the tables would require more time and space than are now available, but the followir points of interest lie upon the surface.

1. The highest death-rates are in districts largely inhabited by Italians, and this is true n only of the children but of the adults (Table I.).

2. The lowest death-rate of the thickly populated districts, and one of the lowest in the city there being but seventeen lower, and those mostly in surburban districts, is in the lower part of th Tenth Ward, the poor Jewish district. The comparatively low death-rate of this district has bee noticed for many years, and is probably due to the frugality and temperate habits of these Jews, a well as to the native vigor of the race (Table I.).

3. The highest ward death-rate was in the Fourteenth and the next highest in the Fourth both Italian wards, while the lowest rate was in the Third, where the tenements are scattered an the population is small, the next lowest being in the Twenty-fourth, a suburban ward (Table II.).

4. The highest death-rate from diarrhœal diseases was in the Fifth Ward, from diphtheria an croup in the Twenty-third Ward, from malarial fevers in the Fourteenth Ward, from phthisis i the Fifth Ward, from pneumonia in the First Ward, and from typhoid fever in the Twenty-fir Ward (see Tables V. and VI.).

5. As regards density of population, the death-rate is highest in the class of houses occupie by less than twenty tenants and lowest in those occupied by one hundred and upwards, as appeare also in a similar report in 1889. This may perhaps be accounted for by assuming that the sic are more likely to be removed to the hospital from the larger houses than from the smaller one and that from the occupants of the latter the residence before admission is more likely to be co rectly obtained, as they are presumably more intelligent and better conversant with the Englis language. The death-rates from bronchitis, diarrhœal diseases, diphtheria and croup, measle

pneumonia and scarlet fever increase as the number of tenants increases, while Bright's disease, heart diseases, influenza, malarial fevers, phthisis and typhoid fever show a tendency to decrease in the larger houses. These, it is worthy of notice, are most of them diseases which are likely to be removed to a hospital, because they run a more protracted course and constitute a greater drain upon the resources of the family (see Tables VIII. and IX.).

6. The results obtained by comparing certain special localities described in the tables are complicated somewhat by the fact that the same district may be included under two different headings, e. g., Eighteenth Ward, District C, comprises a large amount of made land and contains two gas-works. Without any attempt to eliminate the effects of such complications, attention may be called to the following points:

(a) The death-rate is much higher in districts bordering on the North river than along the East river, and this is true not only of the general rate but of the rates from particular diseases, the only ones showing a higher death-rate along the East river being malarial fevers, tuberculous diseases other than phthisis, and scarlet fever (see Tables X. and XII.).

(b) With regard to localities selected on account of the existence of conditions assumed to be unhealthy, the highest general death-rate and the highest rate among persons five years of age and over, were in the districts consisting largely of made land, while the highest rate among children under five years of age was in districts containing slaughter-houses. The lowest general death-rate and the lowest for persons five years of age and over, were in districts containing gas-houses, and the lowest for children under five was in districts comprising much land formerly marshy (see Tables X. and XII.).

(c) As regards particular diseases, the following table will show the relations of the localities in question to each other, No. 1 indicating the highest death-rate and No. 4 the lowest from each disease:

Cause of Death.	Relative Mortality from Each Disease			
	Marsh-land Districts.	Made-land Districts.	Slaughter-house Districts.	Gas-house Districts.
Bright's disease	3	1	2	4
Bronchitis	2	1	4	3
Diarrhœal diseases	2	4	3	1
Diphtheria and croup	2	3	1	4
Heart disease	3	1	2	3
Influenza	4	3	1	2
Malarial fevers	3	2	4	1
Measles	4	1	3	2
Phthisis	3	1	2	4
Other tuberculous diseases	3	1	3	2
Pneumonia	1	2	3	4
Scarlet fever	1	4	2	3
Typhoid fever	4	1	2	3

(See Table XII.)

Home-workers.

In the tables relating to home-workers, the numbers involved, when a proper division is made, are not large enough to justify the drawing of any conclusions with certainty. Home-workers were counted wherever they were found, and in by far the larger number of instances, there were only one or two families so employed out of a large houseful. Probably most of these occupied small stores, cigar shops or tailor shops, and lived in the rear room. All such cases being grouped together under the heading "partly occupied" by tailors, etc., there are left only 2,495 tenants living in houses occupied solely by tailors, and only 1,817 in houses occupied solely by cigar-makers. Only 926 houses are included in these tables altogether.

With these precautionary remarks, the following points may be noted in the tables :

1. The highest death-rate was among the cigar-makers, and the lowest in houses partly occupied by dressmakers (see Table XIII.).

2. The death-rate from phthisis was highest in houses entirely occupied by cigar-makers, and lowest in those entirely occupied by tailors. On the other hand, the death-rates from diphtheria and croup and measles were highest in houses entirely occupied by tailors (see Table XIV.).

With regard to these death-rates, it should be remarked that nationality and race may have something to do with causing the marked difference, the cigar-makers being mostly Bohemians, and the tailors mostly Jews, whose death-rate under all circumstances is comparatively low.

Respectfully submitted,

ROGER S. TRACY, M. D., Register of Records.

MARCH 1, 1892.

TABLE I.—*Population, Deaths and Death-rates by District and Age.*

WARD.	District.	POPULATION.			DEATHS.			DEATH-RATE.		
		Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years.
First	A	7,504	6,811	693	273	159	114	36.38	23.35	164.52
	B	663	589	74	13	7	6	19.61	11.88	81.08
Second	..	144	127	17	...	...	...	.....	.....	.....
Third	..	1,357	1,244	113	23	17	6	16.95	13.66	53.10
Fourth	A	5,232	4,733	499	212	124	83	40.52	26.21	176 35
	B	10,092	8,689	1,403	352	185	167	34.88	21.29	119.02
Fifth	A	4,997	4,351	646	139	87	52	27.82	20.00	80.45
	B	3,171	2,692	479	119	60	59	37.52	22.29	123.20
Sixth	A	1,208	1,130	78	23	15	8	19.04	13.27	102.57
	B	6,008	5,441	567	154	75	79	25.63	13.78	139.32
	C	15,925	14,168	1,757	445	216	229	27.94	15.24	130.33

TABLE I.—*Population, Deaths and Death-rates by District and Age*—(Continued).

Ward.	District.	Population.			Deaths.			Death-rate.		
		Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years.
Seventh	A	9,569	7,666	1,903	267	162	105	27.90	21.13	55.18
	B	9,678	8,392	1,286	350	171	179	36.17	20.37	139.18
	C	27,175	21,130	6,045	536	274	262	19.72	12.97	43.35
	D	11,898	10,187	1,711	300	148	152	25.21	14.53	88.84
Eighth	A	7,064	6,069	995	201	128	73	28.45	21.09	73.37
	B	7,444	6,383	1,061	246	116	130	33.05	18.17	122.52
	C	8,020	6,872	1,148	239	121	118	29.80	17.61	102.79
Ninth	A	7,274	6,277	997	205	136	69	28.18	21.66	69.20
	B	16,975	15,072	1,903	422	247	175	24.86	16.39	91.96
	C	7,604	6,611	993	167	95	72	21.96	14.37	72.50
	D	8,265	7,247	1,018	140	88	52	17.15	12.31	51.08
Tenth	A	35,190	29,515	5,675	571	224	347	16.23	7.59	61.15
	B	26,324	22,062	4,262	581	251	330	22.07	11.38	77.44
Eleventh	A	23,845	19,439	4,406	561	228	333	23.53	11.73	75.58
	B	18,801	16,323	2,478	381	178	203	20.26	10.90	81.92
	C	10,406	8,928	1,478	288	132	156	27.67	14.78	105.54
	D	17,928	15,331	2,597	510	261	249	28.45	17.02	95.88
Twelfth	A	3,882	3,418	464	56	36	20	14.43	10.53	43.10
	B	10,205	8,950	1,255	203	137	66	19.89	15.31	52.78
	C	15,436	13,185	2,251	316	146	170	20.47	11.07	75.54
	D	4,910	4,257	653	84	48	36	17.10	11.28	55.13
	E	10,518	9,190	1,328	178	108	70	16.92	11.75	52.71
	F	8,304	7,401	903	173	93	80	20.61	12.57	80.56
	G	18,170	15,634	2,536	555	211	344	30.54	13.50	135.63
	H	6,033	5,357	676	71	36	35	11.77	6.72	51.78
	I	23,628	20,864	2,764	494	239	255	20.91	11.45	92.27
	K	3,457	3,087	370	58	31	27	16.78	10.06	71.81
	L	7,895	7,008	888	119	74	45	15.07	10.56	50.67
	M	38,865	34,357	4,508	778	353	425	20.02	10.27	94.27
	N	15,602	14,280	1,322	279	164	115	17.88	11.48	86.99
	O	26,072	23,172	2,900	409	237	172	15.69	10.23	59.31
	P	3,416	3,070	346	77	42	35	22.54	13.68	101.17
	R	8,263	7,261	1,002	127	76	51	15.37	10.47	50.90
	S	7,148	6,126	1,022	88	40	48	12.31	6.53	46.96
Thirteenth	A	30,090	24,433	5,657	673	233	440	22.37	9.54	77.78

TABLE I.—*Population, Deaths and Death-rates by District and Age*—(Continued).

WARD.	District.	POPULATION.			DEATHS.			DEATH-RATE.		
		Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years.
Thirteenth	B	14,319	12,150	2,169	424	193	231	29.61	15.88	106.50
Fourteenth	A	9,578	8,349	1,229	321	136	185	33.52	16.29	150.52
	B	17,785	14,912	2,873	687	290	397	38.62	19.45	138.18
Fifteenth	A	8,892	7,516	1,376	208	130	78	23.39	17.30	56.69
	B	2,057	1,689	368	74	41	33	35.98	24.27	89.67
	C	2,295	2,025	270	45	30	15	19.61	14.81	55.56
	D	609	522	87	7	7	....	11.50	13.41	.....
Sixteenth	A	6,957	6,051	906	248	128	120	35.65	21.15	132.44
	B	13,741	12,433	1,308	345	225	120	25.10	18.10	91.74
	C	5,216	4,543	673	108	60	48	20.70	13.21	71.32
	D	10,755	9,459	1,296	221	136	85	20.55	14.38	65.58
Seventeenth	A	16,362	13,865	2,497	375	196	179	22.92	14.13	71.68
	B	31,044	26,373	4,671	679	326	353	21.87	12.36	75.57
	C	9,967	9,178	789	216	133	83	21.67	14.49	105.20
	D	16,171	14,623	1,548	314	182	132	19.42	12.44	85.28
	E	7,006	6,247	759	222	127	95	31.69	20.33	125.17
	F	15,540	13,493	2,047	476	256	220	30.63	18.97	107.47
Eighteenth	A	218	202	16	2	2	....	9.17	9.90	.....
	B	5,111	4,666	445	95	65	30	18.59	13.93	67.42
	C	24,700	21,610	3,090	719	400	319	29.11	18.51	103.22
	D	113	104	9	2	2	....	17.70	19.23	.....
	E	12,797	11,145	1,652	312	200	112	24.38	17.95	67.79
Nineteenth	A	888	810	78	12	10	2	13.51	12.35	25.64
	B	16,165	14,073	2,092	367	231	136	22.70	16.41	61.01
	C	15,899	13,640	2,259	402	200	202	25.28	14.66	89.44
	D	711	625	86	12	10	2	16.88	16.00	23.26
	E	11,831	10,550	1,281	233	145	88	19.69	13.74	68.70
	F	15,619	13,483	2,136	369	202	167	23.62	14.98	78.19
	G	3,092	2,665	427	44	33	11	14.23	12.38	25.76
	H	16,110	13,862	2,248	380	185	195	23.59	13.35	86.74
	I	5,277	4,455	822	135	53	82	25.58	11.90	99.76
	K	2,500	2,228	272	34	23	11	13.60	10.32	40.45
	L	20,464	17,783	2,681	501	231	270	24.48	12.99	100.71
	M	11,339	9,525	1,814	311	118	193	27.43	12.39	106.40
	N	7,336	6,633	703	100	63	37	13.63	9 50	52.63

TABLE I.—*Population, Deaths and Death-rates by District and Age*—(Continued).

WARD.	District.	POPULATION.			DEATHS.			DEATH-RATE.		
		Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years.
Nineteenth.....	O	24,632	21,703	2,929	511	276	235	20.74	12.72	80.23
	P	26,246	22,729	3,517	477	248	229	18.17	10.91	65.11
Twentieth.....	A	11,449	10,239	1,210	450	240	210	39.30	23.44	173.56
	B	15,197	13,748	1,449	396	251	145	26.06	18 26	100.08
	C	10,830	9,636	1,194	320	183	137	29.55	18.99	114.73
	D	11,294	10,196	1,098	253	157	96	22.40	15.40	87.43
	E	14,081	12,212	1,869	431	220	211	30.60	18.02	112.89
	F	10,148	9,083	1,065	230	128	102	22.66	14.09	95.78
Twenty-first.....	A	366	340	26	11	9	2	30.05	26.50	76.92
	B	7,044	6,133	911	140	91	49	19.88	14.84	53.78
	C	10,868	9,259	1,609	336	196	140	30.92	21.17	87.01
	D	151	135	16	3	2	1	19.87	14.81	62.50
	E	5,480	4,902	578	106	67	39	19.35	13.67	67.48
	F	195	188	7	4	4	...	20.51	21.28	.....
	G	4,085	3,633	452	105	64	41	25.70	17.62	90.71
	H	12,758	11,261	1,497	384	229	155	30.10	20.34	103.53
Twenty-second....	A	20,672	18,326	2,346	571	296	275	27.62	16.15	117.50
	B	33,082	29,742	3,340	741	412	329	22.39	13.85	98.49
	C	7,273	6,657	616	131	92	39	18.01	13.82	63.32
	D	7,584	6,858	726	247	117	130	32.57	17.06	179.08
	E	20,415	18,659	1,756	467	263	204	22.87	14.09	116.18
	F	5,366	4,876	490	83	56	27	15.47	11.48	55.10
	G	13,101	11,291	1,810	360	152	208	27.48	13.46	114.92
	H	6,828	5,817	1,011	205	86	119	30.03	14.78	117.70
	I	10,987	9 900	1,087	170	90	80	15.47	9.09	73.60
	K	955	849	106	13	9	4	13.61	10.60	37.74
	L	1,045	907	138	5	3	2	4.78	3.31	14.49
	M	2,735	2,446	289	29	17	12	10.60	6.95	41.52
Twenty-third.....	....	16,506	13,850	2,656	416	202	214	25.20	14.59	80.57
Twenty-fourth.....	....	3,938	3,228	710	72	35	37	18.28	10.84	52.11

TABLE II.—*Population, Deaths and Death-rates by Wards and Ages.*

WARD.	POPULATION.			DEATHS.			DEATH-RATE.		
	Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years.
First.....	8,167	7,400	767	286	166	120	35.02	22.43	156.46
Second.....	144	127	17	.....	.....	.....	.....	.....	.....
Third	1,357	1,244	113	23	17	6	16 95	13.66	53.10
Fourth.....	15,324	13,422	1,902	564	309	255	36.80	23.02	134.08
Fifth.....	8,168	7,043	1,125	258	147	111	31.59	20.87	98.67
Sixth.....	23,141	20,739	2,402	622	306	316	26.88	14.75	131.56
Seventh.....	58,320	47,375	10,945	1,453	755	698	24.91	15.94	63.84
Eighth	22,528	19,324	3,204	686	365	321	30.45	18.89	100.18
Ninth.....	40,018	35,107	4,911	934	566	368	23.34	16.12	74 94
Tenth.....	61,514	51,577	9,937	1,152	475	677	18.73	9.21	68.11
Eleventh.....	70,980	60,021	10,959	1,740	799	941	24.51	13.31	85.88
Twelfth.....	211,895	186,611	25,284	4,065	2,071	1,994	19.18	11.10	78.86
Thirteenth	44,409	36,583	7,826	1,097	426	671	24.70	11.64	85.74
Fourteenth	27,363	23,261	4,102	1,008	426	582	36.84	18.31	141.88
Fifteenth.....	13,853	11,752	2,101	334	208	126	24.11	17.70	60.00
Sixteenth.....	36,669	32,486	4,183	922	549	373	25.14	16.90	89.17
Seventeenth.....	96,090	83,779	12,311	2,282	1,220	1,062	23.75	14.56	86.26
Eighteenth	42,959	37,727	5,212	1,130	669	461	26.32	17.73	88.44
Nineteenth.....	178,109	154,764	23,345	3,858	2,028	1,860	21.87	13.10	79.67
Twentieth.....	72,999	65,114	7,885	2,080	1,179	901	28.49	18.10	114.28
Twenty-first	40,947	35,851	5,096	1,089	662	427	26.60	18.46	83.79
Twenty-second..	130,043	116,328	13,715	3,022	1,593	1,429	23.24	13.69	104.20
Twenty-third....	16,506	13,850	2,656	416	202	214	25.20	14.58	80.58
Twenty-fourth...	3,938	3,228	710	72	35	37	18.28	10.84	52.11
Total	1,225,121	1,064,713	160,708	29,123	15,173	13,950	23.77	14.25	86.67

TABLE III.—*Deaths by Particular Diseases by Districts.*

Ward.	District.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Diseases.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
First	A	21	14	20	4	13	2	..	9	43	7	45	6	1	88	273
	B	..	..	2	1	..	..	..	..	2	..	4	..	..	4	13
Second	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Third	..	..	1	1	..	..	..	..	..	6	..	3	..	..	12	23
Fourth	A	8	15	18	15	6	2	2	3	33	1	25	6	1	77	212
	B	20	29	38	10	12	3	..	3	45	3	58	15	..	116	352
Fifth	A	10	8	15	3	7	2	..	..	26	4	13	1	..	50	139
	B	7	6	17	8	5	1	1	1	15	3	19	1	2	33	119
Sixth	A	..	2	1	..	2	..	1	1	2	..	5	..	1	8	23
	B	6	15	6	5	5	1	..	4	24	2	23	4	1	58	154
	C	20	47	26	13	19	5	2	8	60	11	88	8	2	136	445
Seventh	A	25	16	19	11	8	2	..	3	35	8	48	5	1	86	267
	B	19	14	30	9	11	1	..	3	43	10	79	28	1	102	350
	C	31	15	58	27	22	7	3	7	51	10	101	21	2	181	536
	D	22	10	26	8	14	6	1	5	29	7	61	14	4	93	300
Eighth	A	15	8	25	8	7	3	1	1	21	1	29	6	1	75	201
	B	9	28	12	11	8	3	..	5	31	4	35	5	3	92	246
	C	6	21	13	21	10	4	2	4	29	6	31	8	3	81	239
Ninth	A	10	12	7	4	17	2	2	1	30	5	32	4	1	76	205
	B	19	35	33	14	23	7	2	9	44	5	47	9	2	173	422
	C	9	11	11	10	11	2	..	6	19	3	21	4	4	56	167
	D	10	7	10	3	3	5	1	2	22	4	17	2	1	53	140
Tenth	A	16	18	57	37	17	5	1	9	42	12	101	38	2	216	571
	B	32	16	67	37	21	4	1	9	56	19	97	27	5	190	581
Eleventh	A	21	33	68	26	14	5	..	9	55	19	96	38	1	176	561
	B	15	15	33	19	13	8	1	7	32	13	57	21	3	144	381
	C	16	12	27	9	8	2	2	3	28	17	49	15	2	98	283
	D	22	31	49	25	17	10	1	8	63	16	63	33	6	166	510
Twelfth	A	1	2	9	3	6	1	..	1	5	1	5	1	1	20	56
	B	14	4	8	10	15	5	2	1	27	3	36	8	1	69	203
	C	14	9	30	33	12	7	..	7	30	5	46	15	2	106	316
	D	7	3	6	6	3	4	..	1	10	1	12	1	2	28	84
	E	12	9	8	11	9	2	3	..	26	3	20	6	2	67	178
	F	12	8	23	14	1	6	..	..	18	..	25	4	..	62	173

TABLE II.—*Population, Deaths and Death-rates by Wards and Ages.*

WARD.	POPULATION.			DEATHS.			DEATH-RATE.		
	Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years.
First.....	8,167	7,400	767	286	166	120	35.02	22.43	156.46
Second.....	144	127	17	.....	.....	.....	.....	.....	.....
Third	1,357	1,244	113	23	17	6	16 95	13.66	53.10
Fourth.....	15,324	13,422	1,902	564	309	255	36.80	23.02	134.08
Fifth.....	8,168	7,043	1,125	258	147	111	31.59	20.87	98.67
Sixth.....	23,141	20,739	2,402	622	306	316	26.88	14.75	131.56
Seventh.....	58,320	47.375	10,945	1,453	755	698	24.91	15.94	63.84
Eighth	22,528	19,324	3,204	686	365	321	30.45	18.83	100.18
Ninth.....	40,018	35,107	4,911	934	566	368	23.34	16.12	74 94
Tenth.....	61,514	51,577	9,937	1,152	475	677	18.73	9.21	68.11
Eleventh.....	70,980	60,021	10,959	1,740	799	941	24.51	13.31	85.88
Twelfth.....	211,895	186,611	25,284	4,065	2,071	1,994	19.18	11.10	78.86
Thirteenth	44,409	36,583	7,826	1,097	426	671	24.70	11.64	85.74
Fourteenth.....	27,363	23,261	4,102	1,008	426	582	36.84	18.31	141.88
Fifteenth.....	13,853	11,752	2,101	334	208	126	24.11	17.70	60.00
Sixteenth.....	36,669	32,486	4,183	922	549	373	25.14	16.90	89.17
Seventeenth.....	96,090	83,779	12,311	2,282	1,220	1,062	23.75	14.56	86.26
Eighteenth.....	42,939	37,727	5,212	1,130	669	461	26.32	17.73	88.44
Nineteenth.....	178,109	154,764	23,345	3,888	2,028	1,860	21.81	13.10	79.67
Twentieth.....	72,999	65,114	7,885	2,080	1,179	901	28.49	18.10	114.28
Twenty-first	40,947	35,851	5,096	1,089	662	427	26.60	18.46	83.79
Twenty-second..	130,043	116,328	13,715	3,022	1,593	1,429	23.24	13.69	104.20
Twenty-third....	16,506	13,850	2,656	416	202	214	25.20	14.58	80.58
Twenty-fourth...	3,938	3,228	710	72	35	37	18.28	10.84	52.11
Total	1,225,421	1,064,713	160,708	29,123	15,173	13,950	23.77	14.23	86.67

TABLE III.—*Deaths by Particular Diseases by Districts.*

WARD.	DISTRICT.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Diseases.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
First	A	21	14	20	4	13	2	..	9	43	7	45	6	1	88	273
	B	..	..	2	1	..	..	..	..	2	..	4	..	..	4	13
Second	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Third	..	..	1	1	..	..	..	..	..	6	..	3	..	..	12	23
Fourth	A	8	15	18	15	6	2	2	3	33	1	25	6	1	77	212
	B	20	29	38	10	12	3	..	3	45	3	58	15	..	116	352
Fifth	A	10	8	15	3	7	2	..	..	26	4	13	1	..	50	139
	B	7	6	17	8	5	1	1	1	15	3	19	1	2	33	119
Sixth	A	..	2	1	..	2	..	1	1	2	..	5	..	1	8	23
	B	6	15	6	5	5	1	..	4	24	2	23	4	1	58	154
	C	20	47	26	13	19	5	2	8	60	11	88	8	2	136	445
Seventh	A	25	16	19	11	8	2	..	3	35	8	48	5	1	86	267
	B	19	14	30	9	11	1	..	3	43	10	79	28	1	102	350
	C	31	15	58	27	22	7	3	7	51	10	101	21	2	181	536
	D	22	10	26	8	14	6	1	5	29	7	61	14	4	93	300
Eighth	A	15	8	25	8	7	3	1	1	21	1	29	6	1	75	201
	B	9	28	12	11	8	3	..	5	31	4	35	5	3	92	246
	C	6	21	13	21	10	4	2	4	29	6	31	8	3	81	239
Ninth	A	10	12	7	4	17	2	2	1	30	5	32	4	1	76	205
	B	19	35	33	14	23	7	2	9	44	5	47	9	2	173	422
	C	9	11	11	10	11	2	..	6	19	3	21	4	4	56	167
	D	10	7	10	3	3	5	1	2	22	4	17	2	1	53	140
Tenth	A	16	18	57	37	17	5	1	9	42	12	101	38	2	216	571
	B	32	16	67	37	21	4	1	9	56	19	97	27	5	190	581
Eleventh	A	21	33	68	26	14	5	..	9	55	19	96	38	1	176	561
	B	15	15	33	19	13	8	1	7	32	13	57	21	3	144	381
	C	16	12	27	9	8	2	2	3	28	17	49	15	2	98	283
	D	22	31	49	25	17	10	1	8	63	16	63	33	6	165	510
Twelfth	A	1	2	9	3	6	1	..	1	5	1	5	1	1	20	56
	B	14	4	8	10	15	5	2	1	27	3	36	8	1	69	203
	C	14	9	30	33	12	7	..	7	30	5	46	15	2	106	316
	D	7	3	6	6	3	4	..	1	10	1	12	1	2	28	84
	E	12	9	8	11	9	2	3	..	26	3	20	6	2	67	178
	F	12	8	23	14	1	6	..	..	18	..	25	4	..	62	173

TABLE III.—*Deaths by Particular Diseases by Districts* – (Continued).

WARD.	DISTRICT.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Diseases.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
Twelfth	G	17	23	86	39	13	5	5	11	42	10	88	17	4	195	555
	H	6	1	6	7	2	2	..	..	7	1	10	3	..	26	71
	I	16	30	60	33	18	6	7	10	40	8	71	11	4	180	494
	K	5	4	9	..	3	1	..	..	8	..	9	2	2	15	58
	L	9	3	10	8	8	1	1	1	16	1	11	5	3	42	119
	M	31	31	97	39	23	18	22	18	67	18	104	22	4	284	778
	N	10	11	23	14	21	5	2	5	28	7	29	7	3	114	279
	O	24	21	40	22	20	5	1	14	57	5	55	8	5	132	409
	P	4	3	5	5	5	1	..	1	8	3	11	1	..	30	77
	R	9	4	14	9	8	4	1	2	17	3	17	1	2	36	127
	S	2	6	10	10	7	1	..	3	11	1	10	1	..	26	88
Thirteenth	A	26	23	64	54	19	4	1	15	47	15	133	54	1	217	673
	B	26	26	47	22	11	3	1	7	43	19	72	16	1	130	424
Fourteenth	A	13	42	17	11	13	8	4	6	33	13	46	4	1	110	321
	B	31	98	58	38	27	9	2	18	51	14	113	13	3	212	687
Fifteenth	A	19	13	13	7	13	2	2	2	42	3	21	3	3	65	208
	B	6	5	6	3	4	..	..	..	10	2	12	..	1	25	74
	C	5	..	3	1	7	1	..	1	5	..	5	2	1	14	45
	D	1	..	..	..	1	..	..	..	1	..	..	..	..	4	7
Sixteenth	A	14	15	14	10	10	7	..	10	26	6	36	4	4	92	248
	B	33	14	22	13	30	14	1	2	41	10	41	4	2	118	345
	C	3	6	8	9	6	..	..	1	15	1	16	2	..	41	108
	D	15	4	18	7	9	6	1	3	35	8	34	5	2	74	221
Seventeenth	A	19	14	38	14	24	4	2	4	43	11	33	19	3	147	375
	B	25	30	77	36	33	12	2	7	83	21	99	34	4	216	679
	C	10	9	18	16	14	4	1	3	26	9	40	7	1	58	216
	D	14	9	24	15	28	6	2	6	38	5	41	18	5	103	314
	E	13	15	17	12	14	8	1	1	28	7	23	12	2	69	222
	F	25	27	55	33	19	9	1	6	47	8	47	27	1	171	476
Eighteenth	A	..	..	..	..	..	..	..	..	..	..	1	..	..	1	2
	B	4	5	6	3	6	..	1	1	17	2	11	3	2	34	95
	C	44	34	83	28	31	10	2	9	88	26	78	20	7	259	719
	D	..	..	..	..	..	1	..	..	1	..	..	..	..	..	2
	E	31	11	28	10	20	6	1	2	40	4	36	12	4	107	312

TABLE III.—*Deaths by Particular Diseases by Districts*—(Continued).

Ward.	District.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Diseases.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
Nineteenth	A	2	..	..	..	1	..	..	..	2	..	1	..	..	6	12
	B	26	9	24	16	21	10	3	6	52	12	41	10	1	136	367
	C	17	12	29	26	18	7	1	11	46	9	44	28	6	148	402
	D	1	..	..	..	2	1	..	..	2	..	2	..	..	4	12
	E	12	8	14	9	22	7	..	2	33	1	26	13	4	82	233
	F	21	14	37	9	20	6	1	4	50	13	42	12	10	130	369
	G	1	1	2	2	5	2	..	2	4	1	6	..	..	18	44
	H	20	10	41	17	15	4	2	13	40	9	61	15	..	123	380
	I	5	5	13	7	4	2	..	2	14	3	26	10	..	44	135
	K	3	1	3	2	1	1	..	..	1	1	7	..	..	14	34
	L	23	18	52	26	23	8	1	5	51	15	67	13	4	195	501
	M	8	14	44	27	8	4	1	9	39	10	26	6	5	110	311
	N	7	..	7	4	6	3	1	1	14	2	13	2	..	40	100
	O	27	13	38	35	31	14	2	4	52	13	67	10	5	200	511
	P	17	10	51	27	25	5	2	9	44	19	64	18	6	180	477
Twentieth	A	28	23	31	40	15	3	1	8	48	13	60	13	6	161	450
	B	31	19	25	15	29	6	2	6	66	9	48	7	5	128	336
	C	22	16	21	32	15	8	..	12	42	6	48	6	5	87	320
	D	16	10	21	10	21	3	..	2	22	8	31	3	2	104	253
	E	34	19	42	30	22	9	1	5	47	5	58	21	1	137	431
	F	15	11	24	9	9	3	..	4	34	6	30	6	3	76	230
Twenty-first	A	..	..	..	1	1	1	..	..	1	..	3	1	..	3	11
	B	7	6	12	4	9	4	1	..	28	3	15	..	2	49	140
	C	23	15	20	28	14	7	..	6	48	12	36	7	4	116	336
	D	..	..	..	..	..	..	..	..	..	..	1	..	1	1	3
	E	3	3	11	4	6	1	..	..	16	4	14	5	1	38	106
	F	..	..	..	..	..	1	..	..	1	..	..	..	..	2	4
	G	2	6	6	3	7	1	..	..	11	1	14	7	4	43	105
	H	21	19	31	17	22	9	5	5	49	7	51	11	6	131	384
Twenty-second	A	37	23	56	27	24	12	3	7	60	16	84	11	5	206	571
	B	45	36	68	38	36	23	4	9	92	18	87	15	6	264	741
	C	6	5	10	4	8	5	1	..	17	5	18	2	..	50	131
	D	8	9	35	17	7	5	..	4	16	3	29	2	6	106	247
	E	27	22	48	14	31	8	1	7	52	8	57	11	11	170	467

TABLE III.—*Deaths by Particular Diseases by Districts*—(Continued).

WARD.	DISTRICT.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Diseases.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
Twenty-second	F	5	4	9	4	6	5	..	3	9	3	11	..	..	24	83
	G	13	17	49	18	18	3	..	7	34	11	53	8	4	125	360
	H	5	13	22	14	8	3	3	12	23	1	16	1	1	83	205
	I	14	6	12	7	11	4	1	..	15	5	23	4	1	67	170
	K	2	..	2	..	..	..	..	..	2	..	2	..	..	5	13
	L	..	..	1	..	..	..	..	..	1	..	2	..	..	1	5
	M	1	1	4	2	1	1	..	..	2	..	3	..	3	11	29
Twenty-third	..	23	21	56	43	11	2	2	5	53	8	43	8	2	139	416
Twenty-fourth	..	8	7	7	10	1	1	..	1	8	..	6	1	..	22	72

TABLE IV.—*Deaths by Particular Diseases, by Wards.*

WARD.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
First	21	14	22	5	13	2	..	9	45	7	49	6	1	92	285
Second	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....
Third	1	1	..	..	..	..	..	..	6	..	3	..	..	12	23
Fourth	28	44	56	25	18	5	2	6	78	4	83	21	1	193	564
Fifth	17	14	32	11	12	3	1	1	41	7	32	2	2	83	258
Sixth	26	64	33	18	26	6	3	13	86	13	116	12	4	202	622
Seventh	97	55	132	55	55	16	4	18	158	35	269	68	8	462	1,453
Eighth	30	57	50	40	25	10	3	10	81	11	95	19	7	248	686
Ninth	48	65	61	31	54	16	5	18	115	17	117	19	8	360	934
Tenth	48	34	124	74	38	9	2	18	98	31	198	65	7	406	1,152
Eleventh	74	91	177	79	52	25	4	27	178	65	265	107	12	584	1,740
Twelfth	193	172	444	263	174	74	44	75	417	70	559	113	35	1,432	4,065
Thirteenth	52	49	111	76	30	7	2	22	90	34	205	70	2	347	1,097
Fourteenth	44	140	75	49	40	17	6	24	84	27	159	17	4	322	1,008
Fifteenth	31	18	22	11	25	3	2	3	53	5	38	5	5	108	334
Sixteenth	65	39	62	39	55	27	2	16	117	25	127	15	8	325	922

TABLE IV.—*Deaths by Particular Diseases by Wards*—(Continued).

WARD.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
Seventeenth....	106	104	229	126	132	43	9	27	265	61	283	117	16	764	2,282
Eighteenth....	79	50	117	41	57	17	4	12	146	32	126	35	13	401	1,130
Nineteenth....	190	115	355	207	202	74	14	68	444	108	493	137	41	1,440	3,888
Twentieth....	146	98	164	136	111	32	4	37	259	47	275	56	22	693	2,080
Twenty-first...	56	49	80	57	59	24	6	11	154	27	134	31	18	383	1,089
Twenty-second	163	136	316	145	150	69	13	49	323	70	385	54	37	1,112	3,022
Twenty-third..	23	21	56	43	11	2	2	5	53	8	43	8	2	139	416
Twenty-fourth.	8	7	7	10	1	1	..	1	8	..	6	1	..	22	72
Total.....	1,545	1,437	2,727	1,541	1,340	482	132	470	3,304	704	4,080	978	253	10,130	29,123

TABLE V.—*Death-rates by Particular Diseases by Districts.*

WARD.	District.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	General Rate.
First.....	A	2.80	1.87	3.67	.53	1.73	.27	..	1.20	5.73	.93	6.00	.80	.13	11.73	36.38
	B	...	...	3.02	1.51	...	...	..	...	3.02	...	6.03	...	...	6.03	19.61
Second.....	..	...	...	...	...	...	...	..	...	...	...	...	...	...	....	....
Third.....	..	...	.74	.74	...	...	...	..	...	4.42	...	2.21	...	...	8.84	16.95
Fourth.....	A	1.53	2.87	3.44	2.87	1.15	.38	.38	.57	6.31	.19	4.78	1.15	.19	14.71	40.52
	B	1.98	2.87	3.76	.99	1.19	.30	..	.30	4.46	.30	5.75	1.49	...	11.49	34.88
Fifth.....	A	2.00	1.60	3.00	.60	1.40	.40	..	...	5.20	.80	2.60	.20	...	10.00	27.82
	B	2.21	1.89	5.36	2.52	1.58	.32	.32	.32	4.73	.95	5.99	.32	.63	10.41	37.52
Sixth.....	A	...	1.66	.83	...	1.66	..	.83	.83	1.66	...	4.14	...	.83	6.62	19.04
	B	1.00	2.50	1.00	.83	.83	.17	..	.67	3.99	.33	3.83	.67	.17	9.65	25.63
	C	1.26	2.95	1.63	.82	1.19	.31	.13	.50	3.77	.69	5.53	.50	.13	8.54	27.94
Seventh.....	A	2.61	1.67	1.99	1.15	.84	.21	..	.31	3.66	.84	5.02	.52	.10	8.99	27.90
	B	1.96	1.45	3.10	.93	1.14	.10	..	.31	4.44	1.03	8.16	2.89	.10	10.54	36.17
	C	1.14	.55	2.13	.99	.81	.26	.11	.26	1.88	.37	3.72	.77	.07	6.66	19.72
	D	1.85	.85	2.19	.67	1.18	.50	.08	.42	2.44	.58	5.13	1.18	.34	7.82	25.21

TABLE V.—*Death-rates by Particular Diseases by Districts*—(Continued).

WARD.	District.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	General Rate.
Eighth	A	2.12	1.13	3.54	1.13	.99	.42	.14	.14	2.97	.14	4.10	.85	.14	10.62	28.45
	B	1.21	3.76	1.61	1.48	1.07	.40	..	.67	4 16	.54	4.70	.67	.40	12.36	33.05
	C	.75	2.62	1.62	2.62	1.25	.50	.25	.50	3.62	.75	3.87	1.00	.37	10.10	29.80
Ninth	A	1.37	1.65	.97	.55	2.34	.27	.27	.14	4 12	.69	4.40	.55	.14	10.72	28.18
	B	1.12	2.06	1.94	.82	1.35	.41	.12	.53	2.59	.29	2.77	.53	.12	10.19	24.86
	C	1.18	1.45	1.45	1.32	1.45	.26	..	.79	2.50	.39	2.76	.53	.53	7.36	21.96
	D	1.22	.86	1.22	.37	.37	.61	.12	.24	2.69	.49	2.08	.24	.12	6.49	17.15
Tenth	A	.45	.51	1.02	1.05	.48	.14	.03	.26	1.19	.34	2.87	1.08	.06	6.14	16.23
	B	1.22	.61	2.54	1.41	.80	.15	.04	.34	2.13	.72	3.68	1.03	.19	7 22	22.07
Eleventh	A	.88	1.38	2.85	1.09	.59	.21	..	.38	2.31	.80	4.03	1.59	.04	7.38	23.53
	B	.80	.80	1.76	1.01	.69	.43	.05	.37	1.70	.69	3.03	1.12	.16	7.66	20.26
	C	1.54	1.15	2.59	.86	.77	.19	.19	.29	2.69	1.63	4.71	1.44	.19	9.42	27.67
	D	1.23	1.73	2.73	1.39	.95	.56	.06	.45	3.51	.89	3.51	1.84	.33	9.26	28.45
Twelfth	A	.26	.52	2.32	.77	1.55	.26	..	.26	1.29	.26	1.29	.26	.26	5.15	14.43
	B	1.37	.39	.78	.98	1.47	.49	.20	.10	2.65	.29	3.53	.78	.10	6.76	19.89
	C	.91	.58	1.94	2.14	.78	.45	..	.45	1.94	.32	2.98	.97	.13	6.87	20.47
	D	1.43	.61	1.22	1.22	.61	.82	..	.20	2.04	.20	2.44	.20	.41	5.70	17.10
	E	1.14	.86	.76	1.05	.86	.19	.29	...	2.47	.29	1.90	.57	.19	6.37	16.92
	F	1.43	.95	2.74	1.67	.12	.71	..	....	2.14	...	2.98	.48	...	7.39	20.61
	G	.94	1.27	4.73	2.15	.72	.28	.28	.61	2.31	.55	4.84	.94	.22	10.73	30.54
	H	.99	.17	.99	1.16	.33	.33	..	...	1.16	.17	1.66	.49	...	4.31	11.77
	I	.68	1.27	2.54	1.40	.76	.25	.30	.42	1.69	.34	3.00	.47	.17	7.62	20.91
	K	1.45	1.16	2.60	...	.86	.29	..	...	2.32	...	2.60	.58	.58	4.34	16.78
	L	1.14	.38	1.27	1.01	1.01	.13	.13	.13	2.03	.13	1.39	.63	.38	5.32	15.07
	M	.80	.80	2.50	1.00	.59	.46	.57	.46	1.72	.46	2.68	.57	.10	7.31	20.02
	N	.64	.71	1.47	.90	1.35	.32	.13	.32	1.79	.45	1.86	.45	.19	7.31	17.88
	O	.92	.81	1.53	.84	.77	.19	.04	.54	2.19	.19	2.11	.31	.19	5.06	15.69
	P	1.17	.88	1.46	1.46	1.46	.29	..	.29	2.34	.88	3.25	.29	...	8.78	22.54
	R	1.09	.48	1.69	1.09	.97	.48	.12	.24	2.06	.36	2.06	.12	.24	4.36	15.37
	S	.28	.84	1.40	1.40	.98	.14	..	.42	1.54	.14	1.40	.14	..	3.64	12.31
Thirteenth	A	.86	.76	2.13	1.79	.63	.13	.03	.50	1.56	.50	4.42	1.79	.03	7.21	22.37
	B	1.82	1.82	3.28	1.54	.77	.21	.07	.49	3.00	1.33	5.03	1.12	.07	9.08	29.61
Fourteenth	A	1.36	4.39	1.77	1.25	1.36	.84	.42	.63	3.45	1.36	4.80	.42	.10	11.49	33.52
	B	1.74	5.51	3.26	2.14	1.52	.51	.11	1 01	2.87	.79	6.35	.73	.17	11.92	38.62

TABLE V.—*Death-rates by Particular Diseases by Districts*—(Continued).

WARD.	District.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	General Rate.
Fifteenth	A	2.14	1.46	1.46	.79	1.46	.22	.22	.22	4.72	.34	2.36	.34	.34	7.31	23.39
	B	2.92	2.43	2.92	1.46	1.94	...	..	...	4.86	.97	5.83	...	.49	12.15	35.98
	C	2.18	...	1.31	.44	3.05	.44	..	.44	2.18	...	2.18	.88	.44	6.10	19.61
	D	1.64	...	...	...	1.64	...	..	...	1.64	...	...	...	...	6.57	11.50
Sixteenth	A	2.01	2.16	2.01	1.44	1.44	1.01	..	1.44	3.74	.85	5.17	.58	.58	13.22	35.65
	B	2.40	1.02	1.60	.95	2.18	1.02	.07	.15	2.98	.73	2.98	.29	.15	8.59	25.10
	C	.57	1.15	1.53	1.73	1.15	...	..	.19	2.88	.19	3.07	.38	...	7.86	20.70
	D	1.39	.37	1.67	.65	.84	.56	.09	.28	3.25	.74	3.16	.46	.19	6.88	20.55
Seventeenth	A	1.16	.86	2.32	.86	1.47	.24	.12	.24	2.63	.67	2.07	1.16	.18	8.98	22.92
	B	.81	.97	2.48	1.16	1.06	.39	.06	.23	2.67	.68	3.19	1.10	.13	6.96	21.87
	C	1.00	.90	1.81	1.65	1.40	.40	.10	.30	2.61	.90	4.01	.70	.10	5.82	21.67
	D	.87	.56	1.48	.93	1.73	.37	.12	.37	2.35	.31	2.54	1.11	.31	6.37	19.42
	E	1.86	2.14	2.43	1.71	2.00	1.14	.14	.14	4.00	1.00	3.28	1.71	.29	9.85	31.69
	F	1.61	1.74	3.54	2.12	1.22	.58	.06	.39	3.02	.51	3.02	1.74	.06	11.00	30.63
Eighteenth	A	...	...	...	...	...	...	..	...	...	...	4.59	...	...	4.59	9.17
	B	.78	.98	1.17	.59	1.17	...	.20	.20	3.33	.39	2.15	.59	.39	6.65	18.59
	C	1.78	1.38	3.36	1.13	1.26	.40	.08	.36	3.56	1.05	3.16	.81	.28	10.48	29.11
	D	...	...	...	...	...	8.85	..	...	8.85	...	...	...	...	....	17.70
	E	2.42	.86	2.19	.78	1.56	.47	.08	.16	3.13	.31	2.81	.94	.31	8.36	24.38
Nineteenth	A	2.25	...	...	...	1.13	...	..	...	2.25	...	1.13	...	...	6.76	13.51
	B	1.61	.56	1.48	.93	1.30	.62	.19	.37	3.22	.74	2.54	.62	.06	8.41	22.70
	C	1.07	.76	1.82	1.64	1.13	.44	.06	.69	2.89	.57	2.77	1.76	.38	9.31	25.28
	D	1.41	...	...	...	2.81	1.41	..	...	2.81	...	2.81	...	...	5.63	16.88
	E	1.01	.68	1.18	.76	1.86	.59	..	.17	2.79	.08	2.20	1.10	.34	6.93	19.69
	F	1.34	.90	2.37	.58	1.28	.38	.06	.26	3.20	.83	2.69	.77	.64	8.32	23.62
	G	.32	.32	.65	.65	1.62	.65	..	.65	1.29	.32	1.94	...	...	5.82	14.23
	H	1.24	.62	2.55	1.06	.93	.25	.12	.81	2.48	.56	3.79	.93	...	8.26	23.59
	I	.95	.95	2.46	1.33	.76	.38	..	.38	2.65	.57	4.93	1.89	...	8.34	25.58
	K	1.20	.40	1.20	.80	.40	.40	..	...	.40	.40	2.80	...	...	5.60	13.60
	L	1.12	.88	2.54	1.27	1.12	.39	.05	.24	2.49	.73	3.27	.64	.20	9.53	24.48
	M	.71	1.23	3.88	2.38	.71	.35	.09	.79	3.44	.88	2.29	.53	.44	9.70	27.43
	N	.95	...	.95	.55	.82	.41	.14	.14	1.91	.27	1.77	.27	...	5.45	13.63

TABLE V.—*Death-rates by Particular Diseases by Districts*—(Continued).

WARD.	District.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	General Rate.
Nineteenth	O	1.10	.53	1.54	1.42	1.26	.57	.08	.16	2.11	.53	2.72	.41	.20	8.12	20.74
	P	.65	.38	1.94	1 03	.95	.19	.08	.34	1 68	.72	2.44	.69	.23	6.82	18.17
Twentieth	A	2.45	2.61	2.71	3.49	1.31	.86	.09	.70	4.19	1.14	5.24	1.14	.52	14.06	39.30
	B	2.04	1.25	1.64	.99	1.91	.39	.13	.39	4.34	.59	3.16	.46	.33	8.42	26.06
	C	2.03	1.48	1 94	2.95	1.39	.74	..	1.11	3.88	.55	4.43	.55	.46	8 03	29 55
	D	1.42	.89	1.86	.89	1.86	.27	..	.18	1.95	.71	2.74	.27	.18	9.21	22.40
	E	2.41	1.35	2.98	2.13	1.56	.64	.07	.36	3.34	.36	4.12	1.49	.07	9 73	30.60
	F	1.48	1.08	2.36	.89	.89	.30	..	.39	3 25	.59	2.96	.79	.30	7.49	22.66
Twenty-first	A	...	...	...	2.73	2.73	2.73	..	...	2.73	...	8.20	2.73	...	8.20	30.05
	B	.99	.85	1.70	.57	1.28	.57	.14	...	3.97	.43	2.13	...	.28	6.96	19 88
	C	2.12	1.38	1.84	2.58	1.29	.64	..	.55	4.42	1.10	3.31	.64	.37	10 67	30.92
	D	...	...	...	...	...	...	..	...	...	...	6.62	...	6.62	6.62	19 87
	E	.55	.55	2.01	73	1.09	.18	..	...	2.52	.73	2.56	.91	.18	6.93	19.35
	F	...	...	...	...	...	5.13	..	...	5.13	...	...	...	...	10.26	20.51
	G	.49	1.47	1.47	.73	1.71	.24	..	...	2.69	.24	3.43	1.71	.98	10 52	25.70
	H	1.65	1.49	2.43	1.33	1.72	.71	.39	.39	3.84	.55	4.00	.86	.47	10 27	30.10
Twenty-second	A	1.79	1.11	2.71	1.31	1.16	.58	.15	.34	2.90	.77	4.06	.53	.24	9 96	27 62
	B	1.36	1.09	2.06	1.15	1.09	.70	.12	.27	2.78	.54	2.63	.45	.18	7.98	22.39
	C	.82	.63	1.37	.55	1.10	.63	.14	...	2.34	.69	2.47	.28	...	6 87	18.01
	D	1.05	1.19	4.61	2.84	.92	.66	..	.53	2.11	.40	3.82	.26	.79	13.98	32.57
	E	1 32	1.08	2.35	.69	1.52	.39	.05	.34	2.55	.39	2.79	.54	.54	8.33	22.37
	F	.93	.75	1.68	.75	1.12	93	..	.56	1.68	.56	2 05	...	..	4.48	15.47
	G	.99	1.30	3.74	1.37	1.37	.23	..	.53	2.59	.84	4.04	61	.31	9.54	27.48
	H	.73	1 90	3.22	2.05	1.17	.44	.44	1.76	3.37	.15	2.34	.15	.15	12.16	30 03
	I	1.27	.55	1.03	.64	1.00	.36	.09	...	1.37	.46	2.09	.36	.03	6.10	15.47
	K	2.09	...	2.09	...	...	...	..	...	2.09	...	2.09	...	...	5.24	13.61
	L	...	...	.96	...	...	...	..	...	.96	...	1.91	...	...	.96	4.78
	M	.37	.37	1.46	.73	.37	.37	..	...	.73	...	1.10	...	1.10	4.02	10.60
Twenty-third	....	1.39	1.27	3.39	2.60	.67	.12	.12	.30	3.21	.48	2.60	.48	.12	8.42	25.20
Twenty-fourth	....	2.03	1.78	1.78	2.54	.25	.25	..	.25	2.03	...	1.52	.25	...	5.59	18.28

TABLE VI.—*Death-rates by Particular Diseases by Wards.*

WARD.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Diseases.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	General Rate.
First.....	2.57	1.71	2.69	.61	1.59	.24	...	1.10	5.51	.86	6.00	.73	.12	11.26	35.02
Second.....	....	....	....	....	....	...	...	...	....	...	....	...	...	....	....
Third	.74	.74	....	....	....	...	...	...	4.42	...	2.21	...	...	8.84	16.95
Fourth.....	1.83	2.87	3.65	1.63	1.17	.33	.13	.39	5.09	.26	5.42	1.37	.07	12.59	36.80
Fifth.....	2.08	1.71	3.92	1.35	1.47	.37	.12	.12	5.02	.86	3.92	.24	.24	10.16	31.59
Sixth.....	1.12	2.77	1.43	.78	1.12	.26	.13	.56	3.72	.56	5.01	.52	.17	8.73	26.88
Seventh	1.66	.94	2.28	.94	.94	.27	.07	.31	2.71	.60	4.96	1.17	.14	7.92	24.91
Eighth	1.33	2.53	2.22	1.78	1.11	.44	.13	.44	3.60	.49	4.22	.84	.31	11.01	30.45
Ninth.....	1.20	1.62	1.52	.77	1.35	.40	.12	.45	2.87	.42	2.92	.47	.20	9.00	23.34
Tenth.....	.78	.55	2.02	1.20	.62	.15	.03	.29	1.59	.50	3.22	1.06	.11	6.60	18.73
Eleventh	1.04	1.28	2.49	1.11	.73	.35	.06	.38	2.51	.92	3.73	1.51	.17	8.23	24.51
Twelfth.....	.91	.81	2.10	1.24	.83	.35	.21	.35	1.97	.33	2.64	.53	.17	6.76	19.18
Thirteenth	1.17	1.10	2.50	1.71	.68	.16	.05	.50	2.03	.77	4.62	1.58	.05	7.81	24.70
Fourteenth.....	1.61	5.12	2.74	1.79	1.46	.62	.22	.88	3.07	.99	3.81	.62	.15	11.77	36.84
Fifteenth.....	2.24	1.30	1.59	.80	1.80	.22	.14	.22	4.19	.36	2.74	.36	.36	7.80	24.11
Sixteenth.....	1.77	1.06	1.69	1.06	1.50	.74	.05	.44	3.19	.68	3.46	.41	.22	8.86	25.14
Seventeenth.....	1.10	1.08	2.38	1.31	1.37	.45	.09	.28	2.76	.63	2.95	1.22	.17	7.95	23.75
Eighteenth	1.84	1.16	2.73	.96	1.33	.40	.09	.28	3.40	.73	2.93	.82	.30	9.36	26.32
Nineteenth.....	1.07	.65	1.59	1.16	1.13	.42	.08	.38	2.49	.61	2.77	.77	.23	8.08	21.82
Twentieth.....	2.00	1.34	2.25	1.86	1.52	.44	.05	.51	3.55	.64	3.77	.77	.30	9.49	28.49
Twenty-first.....	1.37	1.20	1.95	1.39	1.44	.59	.15	.27	3.76	.66	3.27	.76	.44	9.35	26.60
Twenty-second..	1.25	1.05	2.43	1.12	1.15	.53	.10	.38	2.48	.54	2.96	.42	.28	8.55	23.24
Twenty-third....	1.39	1.27	3.39	2.60	.67	.12	.12	.30	3.21	.48	2.60	.48	.12	8.42	25.20
Twenty-fourth...	2.03	1.78	1.78	2.54	.25	.25	...	.25	2.03	...	1.52	.25	...	5.59	18.28
Total.....	1.26	1.17	2.23	1.26	1.09	.39	.11	.38	2.70	.57	3.33	.80	.21	8.27	23.77

TABLE VII.—*Deaths according to Cause and Density of Population.*

Houses Containing	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
Less than 20 tenants...	258	154	274	161	245	70	27	36	469	73	406	105	42	1,250	3,640
20 and less than 40....	493	346	684	463	445	154	36	104	1,036	184	1,044	229	70	2,918	8,206
40 and less than 60....	394	346	761	385	317	139	28	138	856	191	1,064	246	80	2,634	7,579
60 and less than 80....	238	282	555	284	197	70	35	97	522	143	753	211	32	1,546	5,264
80 and less than 100..	99	164	291	160	89	28	9	55	264	68	429	105	23	886	2,670
100 and over.....	63	145	162	88	47	21	7	40	158	45	304	82	6	536	1,764
Total.....	1,545	1,437	2,727	1,541	1,340	482	132	470	3,304	704	4,080	978	253	10,130	29,123

TABLE VIII.—*Death-rates, according to Cause and Density of Population.*

Houses Containing	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
Less than 20 tenants..	1.86	1.11	1.97	1.16	1.76	.50	.12	.26	3.38	.53	3.50	.76	.30	9.00	26.20
20 and less than 40...	1.36	.95	1.89	1.28	1.23	.42	.10	.29	2.86	.51	2.88	.63	.19	8.04	22.62
40 and less than 60....	1.25	1.10	2.41	1.22	1.00	.44	.09	.44	2.71	.61	3.37	.78	.25	8.35	24.02
60 and less than 80...	1.10	1.31	2.57	1.32	.91	.32	.16	.45	2.41	.66	3.49	.98	.15	8.55	24.39
80 and less than 100..	.89	1.47	2.62	1.44	.80	.25	.08	.49	2.37	.61	3.86	.94	.21	7.97	24.00
100 and over.....	.78	1.79	2.00	1.08	.58	.26	.09	.49	1.95	.55	3.75	1.01	.07	7.34	21.74
General Death-rate ..	1.26	1.17	2.23	1.26	1.09	.39	.11	.38	2.70	.57	3.33	.80	.21	8.27	23.77

TABLE IX.—*Population, Deaths and Death-rates by Age and Density of Population.*

Houses Containing	Population.			Deaths.			Death-rates.		
	Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years
Less than 20 tenants.....	138,949	122,215	16,734	3,640	2,336	1,304	26.20	19.11	77.91
20 and less than 40.....	362,753	318,237	44,516	8,206	4,792	3,414	22.62	15.06	76.67
40 and less than 60.....	315,479	274,067	41,412	7,579	3,913	3,666	24.02	14.28	88.53
60 and less than 80.....	215,875	186,960	28,915	5,264	2,357	2,907	24.39	12.61	100.55
80 and less than 100.....	111,220	94,859	16,361	2,670	1,103	1,567	24.00	11.63	95.78
100 and over.....	81,145	68,375	12,770	1,764	672	1,092	21.74	9.83	85.51
Total	1,225,421	1,064,713	160,708	29,123	15,173	13,950	23.77	14.25	86.80

TABLE X.—*Population, Deaths and Death-rates in Certain Special Localities.*

Locality.	Population.			Deaths.			Death-rates.		
	Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years
a. Bordering on East river, below Eighty-sixth street	200,737	172,567	28,170	5,549	2,881	2,668	27.64	16.70	94.70
b. Bordering on North river, below Eighty-sixth street	129,630	114,114	15,516	3,953	2,107	1,846	30.49	18.46	118.60
c. Former marsh land.....	161,294	138,764	22,530	4,302	2,124	2,178	26.66	15.31	96.67
d. Made land.....	73,865	65,259	8,606	2,175	1,249	926	30.84	19.14	107.60
e. Vicinity of slaughter-houses	63,753	55,469	8,284	1,764	868	896	27.67	15.65	108.15
f. Vicinity of gas-houses.....	106,620	92,983	13,637	2,810	1,353	1,457	26.36	14.55	106.86

a. Comprising First Ward, District B; Second Ward; Fourth Ward, Districts A and B; Seventh Ward, Districts A and B; Thirteenth Ward, District B; Eleventh Ward, Districts C and D; Eighteenth Ward, District C; Twenty-first Ward, Districts C and H; Nineteenth Ward, Districts C, F, I, M and P.

b. Comprising First Ward, District A; Third Ward; Fifth Ward, District A; Eighth Ward, District A; Ninth Ward, Districts A and C; Sixteenth Ward, Districts A and C; Twentieth Ward, Districts A, C and E; Twenty-second Ward, Districts A, D, G, H and L.

c. Comprising Fourth Ward, District B; Seventh Ward, Districts A and B; Eleventh Ward, Districts B, C and D; Twelfth Ward, Districts C, D, G and I; Fifth Ward, Districts A and B; Eighth Ward, Districts A and B.

d. Comprising First Ward, Districts A and B; Second Ward; Fourth Ward, District A; Sixth Ward, District B; Eighteenth Ward, District C; Twenty-first Ward, District H; Ninth Ward, District C; Sixteenth Ward, Districts A and C.

e. Comprising Nineteenth Ward, District C; Twentieth Ward, District E; Twenty-second Ward, Districts A and G.

f. Comprising Eighteenth Ward, District C; Sixteenth Ward, District A; Eleventh Ward, District D; Twelfth Ward, Districts G and M.

TABLE XI.—*Deaths by Particular Diseases in Certain Special Localities.*

LOCALITY. (See Table X.)	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	Total.
a. Bordering East river	232	256	538	271	215	73	18	85	670	173	765	230	56	1,897	5,549
b. Bordering North river	224	195	358	226	180	61	11	83	457	82	545	89	33	1,398	3,953
c. Marsh land	212	232	447	224	142	57	18	63	461	103	667	174	31	1,471	4,302
d. Made land	126	129	193	97	104	33	9	47	299	53	299	57	24	806	2,278
e. Near slaughter-houses	101	71	176	101	82	31	5	30	187	41	239	68	16	616	1,764
f. Near gas-houses	128	134	329	141	94	50	30	56	285	76	369	96	25	936	2,810

TABLE XII.—*Death-rates by Particular Diseases in Certain Localities.*

LOCALITY.	Bright's Disease.	Bronchitis.	Diarrhœal Diseases.	Diphtheria and Croup.	Heart Disease.	Influenza.	Malarial Fevers.	Measles.	Phthisis.	Other Tuberculous Diseases.	Pneumonia.	Scarlet Fever.	Typhoid Fever.	All Other Causes.	General Death-rate.
a. On East river	1.45	1.32	2.68	1.35	1.07	.36	.09	.42	3.34	.86	3.81	1.15	.28	9.45	27.64
b. On North river	1.77	1.50	2.76	1.74	1.39	.47	.08	.64	3.52	.63	4.20	.69	.30	10.78	30.49
c. Marsh land	1.31	1.44	2.77	1.39	.88	.35	.11	.39	2.86	.64	4.14	1.08	.19	9.12	26.66
d. Made land	1.71	1.75	2.61	1.34	1.41	.45	.12	.64	4.05	.72	4.05	.77	.32	10.91	30.84
e. Near slaughter-houses	1.58	1.11	2.76	1.58	1.29	.49	.08	.47	2.93	.64	3.75	1.07	.25	9.66	27.67
f. Near gas-houses	1.20	1.26	3.09	1.32	.88	.47	.28	.53	2.68	.71	3.46	.90	.23	9.14	26.36

TABLE XIII.—*Population, Deaths and Death-rates in Houses Occupied Wholly or Partly by Home-workers.*

HOUSES OCCUPIED BY	POPULATION.			DEATHS.			DEATH-RATES.		
	Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years.
Tailors only	2,495	2,011	484	61	19	42	24.45	9.45	86.79
Tailors partly	20,558	17,003	3,555	471	202	269	22.91	11.88	75.77
Dressmakers partly	3,869	3,370	499	86	35	51	22.23	10.39	102.20
Total	26,922	22,384	4,538	618	256	362	22.95	11.44	79.77

TABLE XIII.—*Population, Deaths and Death-rates in Houses Occupied Wholly or Partly by Home-workers*—(Continued).

Houses Occupied by	Population.			Deaths.			Death-rates.		
	Total.	5 Years and Over.	Under 5 Years.	Total.	5 Years and Over.	Under 5 Years.	General.	5 Years and Over.	Under 5 Years.
Cigar-makers only	1,817	1,456	361	48	20	28	26.41	13.74	77.56
Cigar-makers partly	2,968	2,510	458	86	35	51	28.97	13.94	111.35
Total	4,785	3,966	819	134	55	79	28.01	13.87	96.45
Other artisans	14,149	11,962	2,187	380	189	191	26.85	15.72	87.33
Grand total	45,856	38,312	7,544	1,132	500	632	24.69	13.05	83.77

TABLE XIV.—*Deaths and Death-rates by Certain Diseases in Houses Occupied Wholly or Partly by Home-workers.*

Houses Occupied by	Deaths.								Death-rates.							
	Diarrhœal Diseases.	Diphtheria and Croup.	Measles.	Scarlet Fever.	Phthisis.	Other Tuberculous Diseases.	All Other Causes.	Total.	Diarrhœal Diseases.	Diphtheria and Croup.	Measles.	Scarlet Fever.	Phthisis.	Other Tuberculous Diseases.	All Other Causes.	General Death-rate.
Tailors only	7	5	3	1	2	1	42	61	2.81	2.00	1.20	.40	.80	.40	16.83	24.45
Tailors partly	38	33	13	23	47	13	304	471	1.85	1.61	.63	1.12	2.29	.63	14.79	22.91
Dressmakers partly	13	5	1	7	9	4	47	86	3.36	1.29	.26	1.81	2 33	1.03	12.15	22.23
Total	58	43	17	31	58	18	393	618	2.15	1.60	.63	1.15	2.15	.67	14.60	22.95
Cigar-makers only	7	..	1	1	8	2	29	48	3.85	...	.55	.55	4.40	1.10	15.96	26.41
Cigar-makers partly	10	5	2	3	6	4	56	86	3.37	1.68	.67	1.01	2.02	1.35	18.87	28.97
Total	17	5	3	4	14	6	85	134	3.55	1.05	.63	.84	2.93	1.25	17.77	28.01
Other artisans	31	19	8	9	39	9	265	380	2.19	1.34	.57	.64	2.76	.64	18.73	26.85
Grand total	106	67	28	44	111	33	743	1,132	2.31	1.46	.61	.96	2.42	.72	16.20	24.69

EMMONS CLARK, *Secretary:*

SIR—I have the honor to submit the annual report of the Bureau of Records for the year 1891.

There were reported during the year 43,634 deaths, 46,904 births and 15,764 marriages, an increase of 3,404 deaths, 7,654 births and 772 marriages over the number reported in 1890. For the first time since the organization of the Health Department, the number of births reported exceeded that of the deaths, notwithstanding the unusually high mortality of the year.

DEATHS.

The actual number of deaths occurring during the year was 43,659, an increase over the previous year of 3,556. This increase of about eight per cent. was probably due to the prevalence of the influenza, which, after causing a few isolated deaths during the remainder of the year 1890, after the subsidence of the severe epidemic of January in that year, gradually increased toward the end of March, 1891, and culminated in an epidemic much more severe than the one of 1889–90, and much more lasting in its effects. I say, probably due, because the deaths directly attributable to influenza were not sufficiently numerous to account alone for this increase, which, although heaviest in diseases of the respiratory organs, was quite generally distributed over the whole list of diseases. This is shown by the following table:

Comparative Table of Deaths by Classes, for 1890 *and* 1891.

CLASS OF DISEASE.	NUMBER OF DEATHS.		COMPARISON.	
	1890.	1891.	Increase.	Decrease.
Miasmatic	3,701	5,037	1,336	....
Diarrhœal	3,346	3,587	241	....
Malarial	176	185	9	....
Zoögenous	5	1	....	4
Venereal	161	105	....	56
Septic	366	425	59	....
Other Zymotic	1	3	2	....
Parasitic	24	25	1	....
Dietetic	279	290	11	....
Constitutional	7,735	7,404	....	331
Developmental	1,689	1,801	112	....
Nervous	3,210	3,342	132	....
Eye and Ear	60	63	3	....
Circulatory	2,139	2,454	315	....
Respiratory	8,353	9,283	930	....
Digestive	2,549	2,741	192	....
Lymphatic	18	20	2	....
Urinary	2,592	2,696	104	....
Generative	164	188	24	....
Puerperal	175	171	....	4
Locomotory	114	108	....	6
Integumentary	96	128	32	....
Accidents	1,449	1,597	148	....
Homicide	61	56	....	5
Suicide	239	300	61	....
Ill-defined*	1,401	1,649	248	....
	40,103	43,659	3,962	406

* Includes inanition, atrophy, malnutrition, marasmus, etc.

The decrease of 331 in the deaths from constitutional diseases was due to the decrease in deaths from phthisis, as will be seen from the next table, in which are compared the deaths in 1890 and 1891 from particular diseases, comprising about 88 per cent. of the whole number of deaths.

Comparative Table of Deaths in 1890 *and* 1891 *from Particular Diseases.*

Cause of Death.	1890.	1891.	Increase.	Decrease
Measles	730	663	....	67
Scarlet fever	408	1,220	812	....
Diphtheria	1,262	1,361	99	....
Whooping-cough	487	352	....	135
Typhoid fever	352	384	32	....
Influenza	314	854	540	....
Diarrhoeal diseases	3,346	3,587	241	....
Cancer	954	902	....	52
Tubercular meningitis	598	614	16	....
Phthisis	5,492	5,160	....	332
Premature birth	744	799	55	....
Old age	571	515	....	56
Meningitis	856	932	76	....
Apoplexy	931	960	29	....
Convulsions	493	494	1	....
Heart disease	1,978	2,285	307	....
Croup	521	609	88	....
Bronchitis	1,987	1,836	....	151
Pneumonia	4,989	5,818	829	....
Chronic bronchitis	302	447	145	....
Disease of digestive organs	2,549	2,741	192	....
Acute nephritis	386	385	....	1
Bright's disease	2,024	2,116	92	....
Accident	1,449	1,597	148	....
Suicide	239	300	61	....
Marasmus, atrophy, etc.	1,280	1,530	250	....
Total	35,242	38,461	4,013	794

This table comprises all of the diseases that caused 300 or more deaths during the year. It accounts for 3,219 deaths out of the total excess of 3,556 for 1891 over 1890, curiously enough about 88 per cent. of that total, leaving 12 per cent. of the increase to be distributed over the remaining 12 per cent. of causes of death.

AGES.

The deaths of children under five years of age numbered 18,224, against 16,305 in 1890 and 17,152 in 1889, so that of the total increase of 3,556 deaths for the year, 1,919, or more than half, were caused by the increased mortality among children. To a considerable extent this was due to the increased prevalence of the exanthemata, but the children also suffered severely from epidemic influenza, as will be made to appear subsequently.

It is noticeable that the children and youth who passed almost unaffected through the epidemic of 1890 gave way before it in 1891, while persons in the prime of life, who suffered most severely in 1890, showed no increased susceptibility to the disease. This is made evident in the following table.

Comparative Mortality by Age and Sex in 1889, 1890 *and* 1891.

Year.	Under 5 Years.		5 and Under 25 Years.		25 and Under 45 Years.		45 and Under 65 Years.		65 Years and Over.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1889	9,165	7,987	2,135	2,155	4,555	3,371	3,692	2,879	1,742	1,998
1890	8,659	7,646	2,015	1,954	4,947	3,699	3,935	3,197	1,879	2,172
1891	9,732	8,492	2,309	2,288	4,977	3,799	4,014	3,427	2,072	2,549

This comparison brings out very clearly the fact that in 1890 the epidemic fell most heavily on persons between 25 and 65 years of age, those under 25 being apparently unaffected, while in 1891 the mortality of persons between 25 and 65 varied little from that of 1890, and there was a marked increase of mortality at ages above and below those figures.

INFLUENZA.

The influenza, which made such havoc in January, 1890, paid another visit in April, 1891, with results still more disastrous. Its presence was first indicated during the week ending March 28, by the increased number of deaths, and by the report of ten deaths due to influenza.

The course of the epidemic, as indicated by the daily reports of deaths, is shown in the following table:

Deaths Reported Daily during the Epidemic of Influenza in 1891.

Date	Deaths Reported.	Deaths for Week.	Date.	Deaths Reported.	Deaths for Week
Week ending March 21	....	840	March 29	175	
March 22	125		" 30	122	
" 23	116		" 31	146	
" 24	113		April 1	203	
" 25	133		" 2	168	
" 26	151		" 3	146	
" 27	105		" 4	143	
" 28	121				
		895			1,100

Deaths Reported Daily during the Epidemic of Influenza in 1891—(Continued).

Date.	Deaths Reported.	Deaths for Week.	Date.	Deaths Reported.	Deaths for Week.
April 5	150		April 26	128	
" 6	142		" 27	121	
" 7	195		" 28	150	
" 8	178		" 29	127	
" 9	206		" 30	191	
" 10	171		May 1	129	
" 11	174	1,216	" 2	115	961
" 12	185		" 3	120	
" 13	153		" 4	116	
" 14	215		" 5	171	
" 15	203		" 6	125	
" 16	227		" 7	126	
" 17	183		" 8	120	
" 18	181	1,347	" 9	132	910
" 19	183		" 10	142	
" 20	136		" 11	126	
" 21	251		" 12	142	
" 22	165		" 13	146	
" 23	144		" 14	103	
" 24	149		" 15	124	
" 25	180	1,208	" 16	90	873

The rise, culmination and decline of the epidemic were much more protracted than in 1890. The latter epidemic was fierce in its onset, reached its highest point in the second week, and in six weeks was virtually over, while that of 1891 was four weeks in reaching its culmination, and dragged along for four or five weeks more before its energy could be said to be exhausted. This clearly from the following table appears:

Comparison of the Number of Deaths Reported Weekly during the Epidemics of Influenza in 1890 *and* 1891.

1889–1890.

Week Ending	Number of Deaths Reported.	Deaths from Influenza.	Week Ending	Number of Deaths Reported.	Deaths from Influenza.
December 28	762	..	January 25	872	52
January 4	1,202	19	February 1	782	18
" 11	1,424	93	" 8	765	11
" 18	1,151	88			

1891.

Week Ending	Number of Deaths Reported.	Deaths from Influenza.	Week Ending	Number of Deaths Reported.	Deaths from Influenza.
March 7	735	....	April 25	1,208	136
" 14	813	....	May 2	961	72
" 21	840	....	" 9	910	44
" 28	895	10	" 16	873	28
April 4	1,100	48	" 23	777	25
" 11	1,216	108	" 30	799	13
" 18	1,347	179			

The number of deaths reported in any one week during the epidemic of 1891 was not as large as in that of 1890, but the slower course of the disease resulted in a greater mortality. The deaths attributed to influenza alone, or to bronchitis or pneumonia as its sequelæ, were 854 in 1891, against 314 in 1890, while the total number of deaths during the months when the disease was most destructive was only 4,745 in January, 1890, against 5,048 in April, 1891.

In 1890, after the epidemic was over, the general mortality decreased as compared with 1889, so that, although at the end of January there had been already an excess of 1,370 deaths, the diminished mortality for the remainder of the year reduced this number to only 424. In 1891, on the other hand, April closed with an excess of 960 deaths since the beginning of the year, as compared with 1890, and May, with an excess of 1,464, and this increase was not only maintained, but added to, until the year closed with an excess of 3,556.

Moreover, the excess of deaths in January, 1890, was more than accounted for by the excess in the deaths from bronchitis, pneumonia, phthisis and influenza, showing that aside from those four causes, the mortality was less than usual, while in April, 1891, the deaths from those four causes account for only two-thirds of the total excess for the month, showing that the mortality from other causes was largely in excess of the normal rate. This will appear from the following table :

Cause of Death.	Number of Deaths.		Cause of Death.	Number of Deaths.	
	January, 1889.	January, 1890.		April, 1890.	April, 1891.
Bronchitis	182	391	Bronchitis	201	333
Pneumonia	405	1,111	Pneumonia	465	1,112
Phthisis	445	797	Phthisis	418	508
Influenza	....	264	Influenza	3	507
Total	1,032	2,563	Total	1,087	2,460

Total excess of deaths in January, 1890	1,370
Total excess of deaths from said four causes	1,531
Total excess of deaths in April, 1891	1,818
Total excess of deaths from said four causes	1,373

In 1890, the deaths from phthisis were increased considerably above the normal rate during the epidemic of influenza, there having been 797 deaths in January attributed to that disease against a January average for ten years previous of only 457. But in 1891 only a slight increase was noted in the deaths from phthisis, the total for the year being less than for any year since 1880. The following table may be compared with a similar one in the annual report of 1890.

Deaths in April.

Year.	Bronchitis.	Pneumonia.	Phthisis.
1881	159	393	484
1882	152	393	491
1883	174	472	493
1884	137	304	447
1885	163	512	475
1886	127	374	511
1887	180	466	504
1888	181	426	520
1889	159	508	426
1890	201	465	418
Average for ten years	163	431	477
Corrected, for increase of population (average population, 1,430,934)	183	483	535
1891	333	1,112	508

With regard to the ages of those who died during the height of the epidemic, the following table is of interest:

Comparison of Deaths by Age and Sex in April, 1890 and 1891.

Year.	Under 5 Years.		5 and Under 25 Years.		25 and Under 45 Years.		45 and Under 65 Years.		65 Years and Over.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1890	692	618	176	147	384	296	315	278	209	183
1891	661	828	221	256	578	441	493	470	397	526

It will be seen that the mortality was increased at all ages, but especially in females of 65 years of age and upwards, upon whom the force of the epidemic seems to have fallen with crushing effect.

Toward the end of the year there was a return of the influenza, but, although this third epidemic appears to have been severe in neighboring towns, the visitation in this city must be considered a light one. Its course up to the close of the last week of the year is shown in the following table:

Date.	Deaths Reported.	Total for Week.	Deaths from Influenza.	Date.	Deaths Reported.	Total for Week.	Deaths from Influenza.
December 6....	104			December 20..	103		
" 7....	82			" 21..	110		
" 8....	109			" 22..	127		
" 9....	117			" 23..	144		
" 10....	115			" 24..	150		
" 11....	103			" 25..	156		
" 12....	104			" 26..	99		
		734	3			889	38
" 13....	122			" 27..	150		
" 14....	93			" 28..	97		
" 15....	133			" 29..	177		
" 16....	113			" 30..	160		
" 17....	126			" 31..	170		
" 18....	98			January 1.....	107		
" 19....	115			" 2.....	108		
		800	7			969	86

The following week marked the culmination of the epidemic with 972 deaths, including 89 from influenza. But the death-rate has remained steadily high, as it did throughout the year 1891.

INFECTIOUS AND CONTAGIOUS DISEASES.

There was an increase in the prevalence of these diseases as a whole, the deaths from diphtheria, scarlet fever and measles, the most common ones, having been respectively 1,361, 1,220 and 663 against 1,262, 408 and 730 for 1890, a total of 3,244 as compared with 2,400, the increase of 844 being due, as will be seen, almost entirely to the increase of scarlet fever. The tendency of this disease to become more prevalent at stated periods, has thus again manifested itself, the years of greatest prevalence since 1870, having been 1870, 1873, 1879, 1882, 1888 and 1891, showing intervals of 3, 6, 3, 6 and 3 years.

OTHER CAUSES.

Among the more uncommon causes of death during the year were one from hydrophobia and two by the electric current. Two persons broke their necks while diving and one in turning a somersault.

The suicides numbered 300, of whom 239 were males and 61 females. The Germans, as usual, led the list, furnishing 106 out of the total of 300, while there were 9 of German parentage,

making 115 of German blood. Next on the list were natives of the United States, 84 of whom committed suicide, though only 30 of these were of native parentage. Third on the list come the Irish born, but the suicides of Irish parentage were 40 in number.

The most common means of suicide was the firearm, 104 persons, or more than one-third of the whole, having chosen this way of leaving the world. Hanging caused 50 deaths and poison 88.

NATIVITY.

Of the total of 43,659 persons who died during the year, 27,300 were natives of the United States, 6,860 natives of Ireland, and 4,311 natives of Germany. On the other hand, only 7,883 were of native parentage, while 11,453 were of Irish parentage, and 7,594 of German. These proportions do not differ much from those of 1890. But an indication of the great increase in the number of Russian Jews in the city lies in the fact that 515 natives of Russia died during the year, against 341 in 1890, an increase of almost exactly 50 per cent.

Pneumonia caused the greatest number of deaths among natives of the United States or of native parentage, while among those of Irish and German nativity or parentage the most fatal disease was phthisis. The deaths from cirrhosis of the liver and hepatitis, usually attributed to intemperate habits, numbered only 45 among persons of native parentage, against 380 of foreign parentage, including 109 of German and 166 of Irish parentage.

DEATHS IN INSTITUTIONS.

Of the 9,377 deaths in institutions, 4,015 were natives of the United States, 2,138 of Ireland, and 1,196 of Germany, while 1,080 were of native parentage, 2,828 of Irish parentage, and 1,221 of German.

BIRTHS AND MARRIAGES.

The total number of births reported during the year was 46,904, the increase of 7,654 over the number reported in 1890 being due to the vigor and persistence with which delinquent physicians and midwives were followed up. A search of the records early in the year brought to light several hundred deaths of children under six months of age, whose birth had not been reported to the Health Department, as required by law. The prosecutions in these cases began late in the month of June, and the effect was immediately perceptible in the reports of births, which rose suddenly from 697 in the week ending June 27, to 1,288 in the week ending July 4.

The births reported during the first half of the year numbered 20,389, and during the last half 26,515. Even the latter number, representing a total of 53,000 in a year, probably does not represent the true total, although it gives a birth-rate of about 31 in a 1,000.

The records of marriages, it is believed, are now more complete than of the births. There were 15,764 marriages reported during the year, giving a marriage-rate of 18.75, which is much higher than that of any country in Europe, although the birth-rate is lower than in most of them. In every European country excepting France, the birth-rate is considerably more than twice the marriage-rate. If we suppose the rate to be only double in this city, the annual number of births should be at least 63,000.

Among matters of interest in the table of births may be mentioned the report of 1,104 illegitimate, 361 pairs of twins, and one set of triplets.

In the table of marriages it is worthy of notice that one man under 35 years of age took unto himself a bride who was over 80, and one young woman of 20 has married an octogenarian. 5 *colored* men during the year married white wives.

SEARCHES AND TRANSCRIPTS.

The work of the searcher has increased materially when compared with previous years. The number of searches made and transcripts issued during the year 1891 were 12,638 and 9,804, respectively, against 10,709 and 8,558 during 1890, an increase of 14 to 18 per cent.

Respectfully submitted,

ROGER S. TRACY, M. D., Register of Records.

March 21, 1892.

REPORT OF VITAL STATISTICS.

Year Ending December 31, 1891.	Certificates Received and Tabulated.	Increase over Previous Year.	Decrease from Previous Year.	Rate per 1,000, Population Estimated at 1,680,796.	Burial Permits Issued.	Transit Permits Issued.	Coroners' Cases.	Searches Made.	Transcripts Issued.	Indexed.
Marriages	15,764	772	....	9.38	....	....	....	2,145	1,040	15,764
Births	46,904	7,654	....	27.91	....	....	....	1,722	906	46,904
Deaths	43,634	3,404	....	25.96	43,634	745	4,825	8,771	7,858	43,634
Still-births	3,414	99	....	2.03	3,414	....		....	....	3,414

Particulars Regarding Births, Deaths, Marriages and Still-births Reported during Year ending December 31, 1891.

	Total.	White.		Colored.		Native Parents.		Foreign Parents.		Parentage of Mixed Nativity.		Parentage Unknown or Not Stated.		Single.	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Marriages	15,764	15,480	15,485	284	279	....	....	....	....	....	....	....	....	15,877	14,084
Births	46,904	23,719	22,612	274	299	6,078	5,774	13,698	13,139	3,689	3,494	528	504	.....	.....
Deaths	43,634	22,606	20,053	485	490	4,062	3,798	14,586	13,020	2,666	2,492	1,777	1,233	14,792	11,693
Still-births*	3,414	1,908	1,399	41	46	490	366	1,052	757	253	199	156	123	.....	.....

	Married.		Widowed.		Not Stated.		Non-Residents.	The Returns of Births, Marriages and Still-births are Incomplete.									
								Month of Utero-gestation.									
	M.	F.	M.	F.	M.	F.		1	2	3	4	5	6	7	8	9	10	Not Stated.
Marriages	.....	.....	1,887	1,680	....	....	....											
Births	.....	.....	....	....	....	....	....											
Deaths	6,087	5,027	1,865	3,726	347	97	649	..	7	69	142	264	422	487	507	1,508	6	2
Still-births*	.....	.....	....	....	....	....	....											

* 18, sex not stated; 2, color not stated.

Places where Deaths Occurred during Year 1891 (*Actual Number of Deaths*).

Institutions	9,377
Tenement-houses, three families or more	28,215
Dwellings, with less than three families	4,854
Hotels and boarding-houses	503
Elsewhere	710
Total	43,659

Deaths of Males, by Age and Cause of Death, Year

Cause of Death.	Total of Both Sexes.	All Ages	0	1	2	3	4
I.—Specific Febrile (Zymotic) Diseases.							
Miasmatic.							
Small-pox	2	2	..	..	..	..	..
Chicken-pox	6	3	2	..	..	..	..
Measles	663	316	82	116	42	28	25
Scarlet fever	1,220	615	40	105	133	116	70
Diphtheria	1,361	691	65	148	145	115	78
Mumps	5	2	1	..	..	..	1
Whooping-cough	352	168	95	42	16	8	4
Fever, typhoid	384	221	1	3	1	5	3
Fever, typhus	1	1	..	..	..	..	..
Influenza	854	396	25	16	3	1	3
Fever, cerebro-spinal	189	98	27	14	18	6	4
Total miasmatic diseases	5,037	2,514	339	444	358	279	188
Diarrhœal.							
Cholera morbus	64	20	1	2	..	..	..
Cholera infantum	1,524	806	694	103	5	1	..
Diarrhœa, enterocolitis	1,850	920	678	107	15	3	2
Dysentery	149	87	35	12	..	1	..
Total diarrhœal diseases	3,587	1,833	1,408	224	20	5	2
Malarial fevers	185	89	12	9	8	5	2
Zoogenous.							
Hydrophobia	1	1	..	..	..	..	..
Total zoögenous diseases	1	1	..	..	..	..	..
Syphilis	105	63	45	4	..	..	..
Septic.							
Erysipelas	162	84	44	2	2	..	..
Pyæmia, septicæmia	14	7	2	..	..	..	..
Puerperal fever	249	..	..	..	..	..	..
Total septic diseases	425	91	46	2	2	..	..
Other zymotic diseases	3	2	..	1	..	..	..
Total zymotic diseases	9,343	4,593	1,850	684	388	289	192

ending December 31, 1891, *with Total of both Sexes.*

Total Under 5.	5	10	15	20	25	35	45	55	65	75	85	Colored.
..	..	..	..	..	..	2	..	..	..	..	..	..
2	..	..	..	..	1	..	..	..	..	..	..	..
293	18	..	2	1	2	..	..	..	..	..	..	2
464	120	16	4	7	4	1	..	..	..	..	..	3
552	117	7	2	4	4	3	1	1	..	..	..	5
2	..	..	..	..	..	..	..	..	..	..	..	..
165	3	..	..	..	..	..	..	..	..	..	..	6
13	12	9	30	45	47	35	15	4	9	2	..	4
..	..	..	..	..	1	..	..	..	..	..	..	..
48	8	4	5	20	54	53	63	46	59	26	10	10
69	12	6	1	2	..	4	1	3	..	..	..	..
1,608	290	42	44	79	113	98	80	54	68	28	10	30
3	1	..	..	2	1	4	3	4	1	1	..	1
803	3	..	..	..	..	..	..	..	..	..	..	23
805	7	1	4	4	14	13	15	18	15	17	7	19
48	4	..	..	1	5	4	10	5	6	4	..	3
1,659	15	1	4	7	20	21	28	27	22	22	7	46
36	3	2	..	5	11	8	8	8	5	3	..	1
..	..	..	..	..	1	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..	..	..	..
49	..	..	1	1	6	4	1	1	..	..	..	..
48	..	..	..	2	7	8	7	6	4	2	..	1
2	..	1	..	..	2	..	1	1	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
50	..	1	..	2	9	8	8	7	4	2	..	
1	..	..	..	..	..	1	..	..	..	..	..	..
3,403	308	46	49	94	160	140	125	97	99	55	17	78

Deaths of Males, by Age and Cause of Death, Year ending

Cause of Death.	Total of Both Sexes.	All Ages.	0	1	2	3	4
II.—Parasitic Diseases.							
Aphthæ (thrush)	19	10	9	1	..	..	..
Trichinosis	3	2	..	..	..	..	..
Other parasitic diseases	3	..	..	..	..	..	..
Total parasitic diseases	25	12	9	1	..	..	..
III.—Dietetic Diseases.							
Starvation, want of breast milk	13	6	5	..	..	..	..
Scurvy	2	..	..	..	..	..	..
Intemperance—Alcoholism	275	199	..	..	..	..	1
Total dietetic diseases	290	205	5	..	..	..	1
IV.—Constitutional Diseases.							
Acute rheumatism (rheumatism of the heart)	147	55	2	..	2	..	..
Gout	8	6	..	..	..	..	..
Rickets	29	12	6	4	2	..	..
Cancer	902	318	1	1	1	..	..
Tabes mesenterica	39	23	16	3	1	1	..
Tubercular meningitis	614	314	118	88	26	19	12
Phthisis	5,160	2,994	27	15	7	7	5
Other forms of tuberculosis, scrofula	240	137	30	21	4	3	3
Purpura, hæmophilia	19	12	5	..	..	..	..
Anæmia, chlorosis, leucocythæmia	58	25	2	3	..	1	1
Diabetes	130	64	..	..	..	..	..
Other constitutional diseases	58	31	5	2	..	..	1
Total constitutional diseases	7,404	3,996	212	137	43	31	22
V.—Developmental Diseases.							
Premature birth	799	436	436	..	..	..	..
Atelectasis	204	121	121	..	..	..	..
Cyanosis	98	64	64	..	..	..	..
Umbilical hæmorrhage	20	31	13	..	..	..	..
Spina bifida	42	26	26	..	..	..	..
Imperforate anus	8	7	7	..	..	..	..
Cleft palate, hare lip	7	3	3	..	..	..	..
Other congenital defects	108	56	52	1	..	..	3
Old age	515	195	..	..	..	..	..
Total developmental diseases	1,801	921	722	1	..	..	3

December 31, 1891, *with Totat of both Sexes*—(Continued).

Total Under 5.	5	10	15	20	25	35	45	55	65	75	85	Colored.
10	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	2	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
10	..	..	..	..	2	..	..	..	..	..	..	..
5	..	..	..	..	..	1	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
1	..	..	1	5	67	65	45	12	3	..	..	..
6	..	..	1	5	67	66	45	12	3	..	..	..
4	2	1	1	2	8	7	4	9	9	7	1	2
..	..	..	..	..	1	1	3	1	..	..	..	..
12	..	..	..	..	..	..	..	..	..	..	..	..
3	2	2	..	2	18	52	88	84	51	12	4	5
21	1	..	..	..	1	..	..	..	..	..	..	1
253	24	8	3	5	8	1	6	..	1	..	..	11
61	13	17	133	356	909	726	451	189	113	22	4	97
61	5	5	5	11	24	14	7	3	2	..	..	5
5	1	1	..	..	1	1	1	2	..	..	..	..
7	1	..	..	1	3	2	4	4	3	..	..	..
..	..	..	2	2	4	4	17	15	15	4	1	1
8	1	..	3	2	1	12	3	1	..	..	..	..
445	50	34	147	381	978	820	584	308	194	45	10	122
436	..	..	..	..	..	..	..	..	..	..	..	5
121	..	..	..	..	..	..	..	..	..	..	..	3
64	..	..	..	..	..	..	..	..	..	..	..	1
13	..	..	..	..	..	..	..	..	..	..	..	3
26	..	..	..	..	..	..	..	..	..	..	..	1
7	..	..	..	..	..	..	..	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	..
56	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	13	57	79	45	3
726	..	..	..	..	..	1	..	13	57	79	45	16

Deaths of Males, by Age and Cause of Death, Year ending

Cause of Death.	Total of Both Sexes.	All Ages.	0	1	2	3	4
VI.—Local Diseases.							
Diseases of Nervous System.							
Meningitis, encephalitis	932	487	168	98	36	23	12
Chronic hydrocephalus	42	25	13	6	3	2	1
Apoplexy	960	475	8	..	2	..	1
Softening of brain	75	42	1	..	..	..	..
Hemiplegia, brain paralysis	176	79	..	..	..	..	..
Insanity, general paresis	219	142	..	..	..	..	..
Epilepsy	105	58	11	6	4	3	1
Convulsions	494	276	215	44	7	5	1
Congestion of brain	113	61	37	10	2	3	2
Laryngismus stridulus	11	6	2	1	..	1	..
Idiopathic tetanus, trismus	48	31	24	..	..	..	1
Paraplegia, myelitis	65	37	..	2	..	..	..
Locomotor ataxy	23	16	..	..	..	..	..
Other diseases of nervous system	79	34	1	..	..	1	..
Total diseases of nervous system	3,342	1,769	480	167	54	38	19
Diseases of Organs of Special Sense.							
Otitis, otorrhœa, mastoid abscess	59	31	7	2	2	2	..
Other diseases of eye, ear and nose	4	1	..	..	..	..	..
Total diseases of organs of special sense	63	32	7	2	2	2	..
Diseases of Circulatory System.							
Endocarditis, valvular disease of heart	1,526	754	12	2	1	2	2
Pericarditis	91	48	..	1	1	..	..
Hypertrophy of heart	98	52	..	..	..	1	..
Fatty degeneration of heart	213	97	..	..	..	..	..
Heart disease	305	167	2	3	..	..	2
Angina pectoris	51	27	1	..	..	..	..
Aneurism	49	30	..	..	..	..	..
Senile gangrene	29	6	..	..	..	..	..
Embolism, thrombosis	56	24	..	..	..	..	..
Phlebitis	10	3	1	..	..	..	..
Other diseases of circulatory system	26	9	1	..	..	..	..
Total diseases of circulatory system	2,454	1,217	17	6	2	3	4

December 31, 1891, *with Total of both Sexes*—(Continued).

Total Under 5	5	10	15	20	25	35	45	55	65	75	85	Colored.
337	25	9	9	7	32	24	16	23	4	1	..	9
25	..	..	..	..	..	..	..	..	..	..	..	2
11	1	..	2	2	31	51	96	133	95	42	11	11
1	..	..	..	1	2	5	2	11	9	8	3	..
..	..	..	..	2	..	7	18	20	18	13	1	4
..	..	..	..	..	22	46	42	16	11	1	4	..
25	3	1	5	1	8	8	4	1	2	..	..	2
272	3	..	..	..	1	..	..	..	..	..	..	6
54	1	..	1	..	1	..	2	..	1	1	..	..
4	..	1	..	..	..	1	..	..	..	..	..	1
25	..	..	1	1	1	2	..	..	1	..	..	..
2	..	..	..	2	6	8	7	7	4	1	..	..
..	..	..	..	..	1	5	4	5	1	..	..	..
2	2	..	1	2	4	2	6	5	6	2	2	..
758	35	11	19	18	109	159	197	221	152	69	21	35
13	1	..	2	1	8	3	1	2	..	..	..	..
..	..	..	..	..	1	..	..	..	..	..	..	..
13	1	..	2	1	9	3	1	2	..	..	..	..
19	19	24	39	43	79	118	124	143	111	29	6	25
2	..	2	4	1	13	8	4	8	3	3	..	1
1	..	1	1	1	4	..	10	17	12	5	..	..
..	..	..	..	..	5	6	20	36	25	5	..	1
7	2	5	3	1	22	17	32	38	33	5	2	3
1	..	..	..	..	..	4	4	5	9	3	1	..
..	1	..	..	..	4	7	17	1	..	..	..	7
..	..	..	..	..	..	..	..	2	1	1	2	..
..	1	..	..	..	2	4	7	5	2	3	..	1
1	..	..	..	1	..	..	..	1	..	..	..	..
1	..	..	..	..	..	..	3	4	1	..	..	1
32	23	32	47	47	129	164	221	260	197	54	11	39

Deaths of Males, by Age and Cause of Death, Year ending

Cause of Death.	Total of Both Sexes.	All Ages.	0	1	2	3	4
Diseases of Respiratory System.							
Croup	609	326	45	84	65	58	33
Laryngitis	83	46	8	14	3	5	4
Other diseases of larynx and trachea	9	6	1	1	..	..	..
Emphysema, asthma	69	36	..	..	..	..	..
Bronchitis	1,836	924	494	147	36	12	11
Chronic bronchitis	447	195	14	8	..	1	..
Pneumonia	5,818	3,258	739	384	160	90	37
Pleurisy	149	83	5	2	2	..	..
Hydrothorax, empyema	60	39	4	8	3	2	..
Congestion of lungs	110	56	21	3	..	..	..
Hæmorrhage of lungs	31	23	2	..	..	..	..
Other diseases of respiratory system	62	35	4	1	..	1	..
Total diseases of respiratory system	9,283	5,027	1,337	652	270	170	83
Diseases of Digestive System.							
Stomatitis	21	10	8	2	..	..	..
Dentition	151	85	56	24	5	..	..
Tonsilitis, quinsy	17	9	1	..	1	1	1
Gastritis	217	84	25	6	1	1	1
Gastro-enteritis	752	404	298	52	10	6	..
Ulcer of stomach	49	20	1	..	1	..	..
Enteritis	190	112	71	11	3	1	1
Ulcer of intestine, chronic diarrhœa	100	49	7	6	1	..	..
Ileus, obstruction of intestine	90	40	12	2	..	..	1
Stricture or strangulation of intestine	11	7	4	..	1	..	..
Typhlitis, perityphlitis, per. vermiform appendix	83	52	..	..	..	..	1
Hernia	108	40	2	1	3	..	..
Peritonitis	251	108	18	1	1	2	..
Hepatitis	92	52	2	..	..	..	..
Cirrhosis	333	199	1	..	..	..	..
Jaundice	36	21	15	..	..	..	..
Gall-stones, biliary colic, etc	19	6	..	..	..	..	..
Other diseases of liver	47	25	..	..	..	1	..
Other diseases of digestive system	174	92	33	9	3	2	..
Total diseases of digestive system	2,741	1,411	574	114	30	14	5

December 31, 1891, *with Total of both Sexes*—(Continued).

Total Under 5	5	10	15	20	25	35	45	55	65	75	85	Colored.
285	38	1	..	..	..	1	1	..	..	..	..	1
34	3	..	..	..	4	3	..	1	1	..	..	..
2	..	..	1	..	1	..	1	..	..	1	..	..
..	..	..	..	1	4	..	10	8	7	5	1	1
700	13	2	3	5	20	26	33	41	40	31	10	23
23	..	1	2	4	16	8	26	39	48	23	5	2
1,410	99	22	58	124	349	370	330	222	175	83	16	66
9	1	..	3	8	19	12	16	8	5	2	..	1
17	1	..	1	1	6	4	6	2	1	..	..	..
24	3	1	1	..	3	6	5	6	4	3	..	1
2	..	..	..	3	5	5	6	1	1	..	..	2
6	..	..	..	2	8	3	5	3	6	1	1	..
2,512	158	27	69	148	435	438	459	331	288	149	33	97
10	..	..	..	..	..	..	..	..	..	..	..	..
85	..	..	..	..	..	..	..	..	..	..	..	3
4	2	..	..	..	..	..	2	1	..	..	..	..
34	2	1	..	1	5	12	12	7	5	5	..	2
366	3	..	1	5	5	5	4	5	4	4	2	7
2	..	..	1	..	1	2	9	1	3	1	..	1
87	2	..	2	1	1	1	1	1	3	2	1	3
14	..	..	1	..	1	5	3	10	10	4	1	..
15	..	2	1	2	5	3	6	2	4	..	..	..
5	..	..	1	..	..	1	..	..	..	..	..	..
1	3	8	6	7	10	8	6	..	3	..	..	1
6	..	..	..	1	5	8	10	5	8	3	..	2
22	6	13	8	10	16	8	15	6	3	1	..	2
2	..	..	2	1	11	9	12	6	9	..	..	..
1	..	1	..	3	25	54	46	42	23	4	..	1
15	..	1	..	..	1	2	..	1	..	1	..	..
..	..	..	..	1	2	..	1	2	..	..	..	..
1	..	1	..	..	3	6	8	5	1	..	..	..
47	4	..	3	..	11	5	9	7	4	2	..	2
717	22	27	26	32	102	129	144	101	80	27	4	24

Deaths of Males, by Age and Cause of Death, Year ending

Cause of Death.	Total of Both Sexes.	All Ages.	0	1	2	3	4
Diseases of Lymphatic System and Ductless Glands.							
Lymphadenoma (Hodgkin's disease)	4	4	..	..	..	..	..
Exophthalmic goit e (Basedow's disea e)	2	..	..	..	..	..	..
Addison's disease	5	2	..	..	..	..	..
Other dis ases of lymphatic system	9	5	2	1	..	..	..
Total diseases of lymphatic system	20	11	2	1	..	..	..
Diseases of Urinary System.							
Acute nephritis	385	212	15	9	8	..	6
Bright's disease, albuminuria	2,116	1,153	5	2	6	2	4
Uræmia, suppression of urine	54	23	3	5	1	..	..
Calculus	27	20	2	..	..	..	..
Diseases of bladder and prostate glan l	50	71	1	..	..	..	..
Other diseases of urinary system	24	16	2	..	..	..	..
Total diseases of urinary system	2,696	1,495	28	16	15	2	10
Dis ases of Organs of Generation.							
Ovarian disea e	48	..	..	..	..	..	..
Dise ses of uterus and vagina	93	..	..	..	..	..	..
Pelvic bsce s	17	..	..	..	..	..	..
Perineal abscess	1	..	..	..	..	..	..
Diseases of penis, tes t , scr tum, etc	20	14	2	..	..	..	..
Total dis ases of organs of generation	188	14	2	..	..	..	..
Diseases of Parturition.							
Abortion, miscarriage	48	..	..	..	..	..	..
Puerperal convulsions	55	..	..	..	..	..	..
Puerperal mania	1	..	..	..	..	..	..
Placenta prævia, flooding	24	..	..	..	..	..	..
Post-partum hæmorrhage	11	..	..	..	..	..	..
Other diseases of parturition	32	..	..	..	..	..	..
Total diseases of parturition	171	..	..	..	..	..	..

December 31, 1891, *with Total of both Sexes*—(Continued).

Total Under 5.	5	10	15	20	25	35	45	55	65	75	85	Colored.
..	..	..	..	1	2	1	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	2	..	..	..	..	..	..	..	..
3	..	..	1	..	..	..	1	..	..	..	..	..
3	..	..	1	3	2	1	1	..	..	..	..	..
38	18	3	5	7	30	32	27	22	20	9	1	3
19	6	8	13	36	128	260	236	232	160	51	4	29
9	..	..	..	..	5	..	5	2	1	1	..	1
2	2	..	..	2	1	..	3	5	4	1	..	..
1	1	..	..	1	..	1	3	14	24	22	4	..
2	1	..	..	..	1	3	2	3	1	1	..	1
71	28	11	18	46	167	296	276	278	210	85	9	34
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
2	..	..	..	..	5	1	5	1	..	..	..	3
2	..	..	..	..	5	1	5	1	..	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	"	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..

Deaths of Males, by Age and Cause of Death, Year ending

Cause of Death.	Total of Both Sexes.	All Ages.	0	1	2	3	4
Diseases of Organs of Locomotion.							
Caries, necrosis	15	8	..	..	..	..	..
Arthritis, osteitis, periostitis	21	18	2	..	..	1	..
Spinal disease	29	14	..	..	..	..	1
Hip disease	27	16	2	..	..	..	2
Other diseases of locomotor system	16	5	..	..	..	..	..
Total diseases of organs of locomotion	108	61	4	..	..	1	3
Diseases of the Integumentary System.							
Carbuncle	13	8	..	..	..	..	..
Phlegmon, cellulitis	10	5	..	..	..	..	1
Ulcer, bedsore	19	4	..	..	..	..	..
Eczema	9	3	3	..	..	..	..
Pemphigus	5	3	1	..	..	1	..
Other diseases of integumentary system	72	37	18	1	..	..	..
Total diseases of integumentary system	128	60	22	1	..	1	1
Total local diseases	21,134	11,097	2,453	959	373	231	125
VII.—Violence. *Accident and Negligence.*							
Fractures, contusions	741	583	1	11	16	12	8
Wounds	55	47	1	..	..	..	..
Cut, stab	5	5	..	..	3	1	..
Burn, scald	172	72	..	5	8	5	4
Poison	51	36	3	1	1	1	..
Drowning	193	180	1	1	1	..	..
Suffocation	136	87	31	..	..	..	..
Sunstroke	95	78	13	1	..	..	..
Surgical operations	133	42	11	4	..	1	..
Electric current	2	2	..	..	..	..	..
Other forms	15	8	..	..	..	..	..
Total accident and negligence	1,597	1,140	61	23	29	20	12

December 31, 1891, *with Total of both Sexes*—(Continued).

Total Under 5.	5	10	15	20	25	35	45	55	65	75	85	Colored.
..	1	2	1	2	1	1	..	..	..	..	..	..
3	3	2	1	..	7	1	..	1	..	..	..	..
1	3	5	1	..	..	1	3	..	..	..	..	..
4	5	3	1	1	..	1	..	1	..	..	..	..
..	..	..	..	..	1	1	2	1	..	..	..	..
8	12	12	4	3	9	5	5	3	..	..	..	..
..	..	..	..	..	1	3	1	1	1	1	..	..
1	..	..	..	..	..	2	..	1	..	1	..	..
..	..	..	..	..	..	1	1	1	..	1	..	..
3	..	..	..	..	..	..	..	..	..	..	..	..
2	..	..	..	..	..	..	1	..	..	..	..	1
19	2	..	2	..	2	4	3	4	1	..	..	1
25	2	..	2	..	3	10	6	7	2	3	..	2
4,141	281	120	188	298	970	1,206	1,295	1,204	929	387	78	234
48	43	28	31	45	107	103	90	52	30	4	2	10
1	2	2	1	5	15	7	5	8	..	1	..	1
4	1	..	..	..	..	..	..	..	..	..	..	..
22	1	4	10	3	12	9	3	4	4	..	..	..
6	..	1	2	4	4	8	6	4	..	1	..	1
3	18	8	10	14	37	56	22	11	1	..	..	1
31	..	..	3	10	21	8	8	4	2	..	..	2
14	2	1	3	4	15	19	11	4	5	..	..	1
16	1	1	1	2	3	2	6	5	4	1	..	..
..	..	..	..	2	..	..	..	..	..	..	..	..
..	1	..	..	1	3	1	..	1	1	..	..	..
145	69	45	61	90	217	213	151	93	47	7	2	16

Deaths of Males, by Age and Cause of Death, Year ending

Cause of Death.	Total of Both Sexes.	All Ages.	0	1	2	3	4
Homicide.							
Blows	14	12	..	..	..	..	..
Cut, stab	9	6	..	..	..	..	..
Gunshot	25	21	..	..	1	.	..
Other methods	8	3	2	..	..	..	..
Total homicides	56	42	2	..	1	..	..
Suicide.							
Illuminating gas	16	10	..	..	..	..	..
Cut, stab	24	20	..	..	..	..	..
Drowning	9	8	..	..	..	..	..
Gunshot	104	99	..	..	..	..	..
Hanging	49	45	..	..	..	..	..
Leaps	21	11	..	..	..	..	..
Poison	69	39	..	..	..	..	..
Other methods	8	7	..	..	..	..	..
Total suicides	300	239	..	..	..	..	..
Total violence	1,953	1,421	63	23	30	20	12
VIII.—Ill-defined or Not Specified Causes.							
Marasmus, inanition	1,530	796	743	35	9	4	..
Injury at birth	118	62	62	..	..	..	..
Other ill-defined causes	1	1	..	..	..	..	..
Total ill-defined causes	1,649	859	805	35	9	4	..
I.—Specific febrile diseases	9,343	4,593	1,850	684	383	289	192
II.—Parasitic diseases	25	12	9	1	..	..	..
III.—Dietetic diseases	290	205	5	..	..	..	1
IV.—Constitutional diseases	7,404	3,996	212	137	43	31	22
V.—Developmental diseases	1,801	921	722	1	..	..	3
VI.—Local diseases	21,194	11,097	2,453	959	373	231	125
VII.—Violence	1,953	1,421	63	23	30	20	12
VIII.—Ill-defined causes	1,649	859	805	35	9	4	..
Total, all causes	43,659	23,104	6,119	1,840	843	575	355

December 31, 1891, *with Total of both Sexes*—(Continued).

Total Under 5.	5	10	15	20	25	35	45	55	65	75	85	Colored.
..	2	..	1	3	2	4	..	..	..	..	..	
..	..	..	..	1	4	1	..	..	..	..	..	..
1	..	..	3	5	6	3	3	..	..	..	..	..
2	..	..	1	..	..	..	..	..	..	..	..	..
3	2	..	5	9	12	8	3	..	..	..	..	1
..	..	..	..	1	4	1	3	1	..	..	..	..
..	..	..	..	..	7	3	4	3	3	..	..	..
..	..	..	..	1	2	..	3	2	..	..	..	..
..	..	..	3	9	28	24	22	8	5	..	..	..
..	..	..	2	1	6	9	14	10	1	2	..	..
..	..	..	..	2	5	3	..	..	1	..	..	1
..	..	..	2	2	9	12	9	3	2	..	..	..
..	..	..	1	..	2	1	..	2	1	..	..	..
..	..	..	8	16	63	53	55	29	13	2	..	1
148	71	45	74	115	292	274	209	122	60	9	2	18
791	1	1	..	..	..	..	..	..	1	2	..	16
62	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	..	..	..	..	..
853	1	1	..	..	..	1	..	..	1	2	..	16
3,403	308	46	49	91	160	140	125	97	99	55	17	78
10	..	..	..	..	2	..	..	..	..	..	..	..
6	..	..	1	5	67	66	45	12	3	..	..	..
445	50	34	147	381	978	820	584	308	194	45	10	122
726	..	..	..	..	..	1	..	13	57	79	45	16
4,141	281	120	188	298	970	1,206	1,295	1,204	929	387	78	234
148	71	45	74	115	292	274	209	122	60	9	2	18
853	1	1	..	..	..	1	..	..	1	2	..	16
9,732	711	246	459	893	2,469	2,508	2,258	1,756	1,343	577	152	484

Deaths of Females, by Age and Cause of

Cause of Death.	All Ages.	0	1	2	3	4
I.—Specific Febrile (Zymotic) Diseases.						
Miasmatic.						
Chicken-pox	3	2	1	..	..	..
Measles	347	94	138	59	26	17
Scarlet fever	604	26	95	124	106	72
Diphtheria	670	57	130	142	111	64
Mumps	3	1	..	..	..	..
Whooping-cough	184	96	44	29	6	4
Fever, typhoid	163	1	2	5	2	1
Influenza	458	18	10	4	5	1
Fever, cerebro-spinal	91	17	19	17	4	4
Total miasmatic diseases	2,523	312	439	380	260	163
Diarrhœal.						
Cholera morbus	44	4	..	1	..	..
Cholera infantum	718	593	116	5	1	..
Diarrhœa, enterocolitis	930	653	119	9	3	1
Dysentery	62	21	5	1	..	..
Total diarrhœal diseases	1,754	1,271	240	16	4	1
Malarial fevers	96	11	17	6	3	5
Syphilis	42	23	3	..	..	..
Septic.						
Erysipelas	78	38	3	..	..	..
Pyæmia, septicæmia	7	2	..	..	..	..
Puerperal fever	249	..	..	..	..	..
Total septic diseases	334	40	3	..	..	..
Other zymotic diseases	1	..	..	..	..	..
Total zymotic diseases	4,750	1,657	702	402	267	169
II.—Parasitic Diseases.						
Aphthæ (thrush)	9	9	..	..	..	..
Trichinosis	1	..	..	..	..	..
Other parasitic diseases	3	1	..	..	..	..
Total parasitic diseases	13	10	..	..	..	..

Death, Year ending December 31, 1891.

Total Under 5.	5	10	15	20	25	35	45	55	65	75	85	Colored.
3	..	..	..	..	..	..	..	..	..	..	..	..
334	12	..	..	..	1	..	..	..	..	..	..	5
423	155	10	6	4	4	1	..	..	..	1	..	..
504	139	9	3	8	3	..	1	2	1	..	..	5
1	..	1	..	..	1	..	..	..	..	..	..	..
179	4	..	..	..	..	1	..	..	..	..	..	4
11	14	17	23	27	28	20	13	5	3	2	..	4
38	5	4	10	10	53	49	47	71	92	55	24	19
61	9	4	3	3	5	3	1	2	..	..	..	1
1,554	338	45	45	52	95	74	62	80	96	58	24	38
5	1	..	..	2	7	2	8	5	11	2	1	..
715	3	..	..	..	..	..	..	..	..	..	..	25
785	5	2	2	4	14	22	15	26	28	17	10	9
27	3	..	1	1	2	4	6	8	8	1	1	2
1,532	12	2	3	7	23	28	29	39	47	20	12	36
42	5	1	1	7	9	7	6	7	7	1	3	1
26	..	..	1	..	9	2	2	1	1	..	..	..
41	..	..	1	2	4	8	7	4	7	4	..	1
2	..	..	1	2	2	..	..	..	..	..	..	..
..	..	..	13	63	128	44	1	..	..	..	..	8
43	..	..	15	67	134	52	8	4	7	4	..	9
..	1	..	..	..	..	..	..	..	..	..	..	..
3,197	356	48	65	133	270	163	107	131	158	83	39	84
9	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	1	..	..	..	..	..	..
1	1	..	..	..	1	..	..	..	..	..	..	..
10	1	..	..	..	1	1	..	..	..	..	..	..

Deaths of Females, by Age and Cause of Death,

Cause of Death.	All Ages.	0	1	2	3	4
III.—Dietetic Diseases.						
Starvation, want of breast milk	7	6	..	..	..	..
Scurvy	2	..	..	..	..	..
Intemperance—Alcoholism	76	..	..	..	..	..
Total dietetic diseases	85	6	..	..	..	..
IV.—Constitutional Diseases.						
Acute rheumatism (rheumatism of the heart)	92	2	1	3	1	1
Gout	2	..	..	..	..	..
Rickets	17	6	7	3	1	..
Cancer	584	..	..	..	..	..
Tabes mesenterica	16	11	4	..	..	..
Tubercular meningitis	295	123	75	29	23	11
Phthisis	2,166	25	16	9	3	4
Other forms of tuberculosis, scrofula	103	35	12	5	3	2
Purpura, hæmophilia	7	2	1	..	..	..
Anæmia, chlorosis, leucocythæmia	33	5	..	2	..	..
Diabetes	66	1	..	..	..	..
Other constitutional diseases	27	3	2	1	1	..
Total constitutional diseases	3,408	213	118	52	32	18
V.—Developmental Diseases.						
Premature birth	363	362	..	1	..	..
Atelectasis	83	83	..	..	..	..
Cyanosis	34	33	1	..	..	..
Umbilical hæmorrhage	7	7	..	..	..	..
Spina bifida	16	15	..	..	..	..
Imperforate anus	1	1	..	..	..	..
Cleft palate, hare lip	4	4	..	..	..	..
Other congenital defects	52	49	..	..	1	..
Old age	320	..	..	..	..	..
Total developmental diseases	880	554	1	1	1	..
VI.—Local Diseases.						
Diseases of Nervous System.						
Meaingitis, encephalitis	445	163	84	41	12	13
Chronic hydrocephalus	17	10	4	2	..	..

Year ending December 31, 1891—(Continued).

Total Under 5	5	10	15	20	25	35	45	55	65	75	85	Colored.
6	..	..	..	..	..	..	1	..	..	..	..	1
..	..	1	1	..	..	..	..	..	..	..	..	..
..	..	..	1	9	25	21	12	6	1	1	..	..
6	..	1	2	9	25	21	13	6	1	1	..	1
8	3	4	4	1	13	15	13	14	12	4	1	2
..	..	..	..	..	..	..	..	..	1	1	..	..
17	..	..	..	..	..	..	..	..	..	..	..	1
..	2	2	4	5	34	114	183	123	86	28	3	11
15	1	..	..	..	..	..	..	..	..	..	..	1
261	24	3	1	1	2	..	..	1	1	1	..	2
57	16	46	148	333	697	419	222	133	75	17	3	88
57	7	3	4	6	16	2	4	1	3	..	..	5
3	..	..	..	1	1	1	..	..	..	1	..	..
7	2	4	4	1	4	4	2	2	3	..	..	1
1	1	2	1	1	3	7	12	19	15	4	..	2
7	..	2	3	1	5	5	1	1	2	..	..	1
433	56	66	169	350	775	567	437	294	198	56	7	114
363	..	..	..	..	..	..	..	..	..	..	..	9
83	..	..	..	..	..	..	..	..	..	..	..	4
34	..	..	..	..	..	..	..	..	..	..	..	..
7	..	..	..	..	..	..	..	..	..	..	..	..
15	..	1	..	..	..	..	..	..	..	..	..	1
1	..	..	..	..	..	..	..	..	..	..	..	..
4	..	..	..	..	..	..	..	..	..	..	..	..
50	1	1	..	..	..	..	..	..	..	..	..	1
..	..	..	..	..	..	..	1	25	75	125	94	16
557	1	2	..	..	..	..	1	25	75	125	94	31
313	33	14	8	7	12	17	10	11	14	5	1	5
16	..	1	..	..	..	..	..	..	..	..	..	..

Deaths of Females, by Age and Cause of Death,

Cause of Death.	All Ages.	0	1	2	3	4
Apoplexy	485	6	2	1	1	..
Softening of brain	33	..	..	..	..	..
Hemiplegia, brain paralysis	97	4	1	1	..	1
Insanity, general paresis	77	..	..	..	..	..
Epilepsy	47	4	3	7	..	1
Convulsions	218	178	28	8	1	..
Congestion of brain	52	22	15	5	1	..
Laryngismus stridulus	5	3	..	..	..	..
Idiopathic tetanus, trismus	17	16	..	..	..	..
Paraplegia, myelitis	28	1	1	..	..	..
Locomotor ataxy	7	.	..	..	..	..
Other diseases of nervous system	45	..	1	..	..	..
Total diseases of nervous system	1,573	407	239	65	15	15
Diseases of Organs of Special Sense.						
Otitis, otorrhœa, mastoid abscess	28	9	3	1	2	2
Other diseases of eye, ear and nose	3	2	..	..	..	1
Total diseases of organs of special sense	31	11	3	1	2	3
Diseases of Circulatory System.						
Endocarditis, valvular disease of heart	772	12	..	..	1	5
Pericarditis	43	1	..	1	2	..
Hypertrophy of heart	46	..	..	..	..	..
Fatty degeneration of heart	116	..	..	..	..	..
Heart disease	138	3	..	..	..	1
Angina pectoris	24	..	..	..	..	..
Aneurism	19	..	..	..	..	..
Senile gangrene	23	..	..	..	..	..
Embolism, thrombosis	32	1	..	1	..	..
Phlebitis	7	1	..	..	..	..
Other diseases of circulatory system	17	2	..	..	..	..
Total diseases of circulatory system	1,237	20	..	2	3	6
Diseases of Respiratory System.						
Croup	283	28	72	61	56	31
Laryngitis	37	3	10	8	2	5
Other diseases of larynx and trachea	3	..	..	1	..	..
Emphysema, asthma	33	..	..	..	..	..

Year ending December 31, 1891—(Continued).

Total Under 5.	5	10	15	20	25	35	45	55	65	75	85	Colored.
10	..	1	1	3	16	43	96	145	102	57	11	13
..	..	..	..	..	4	1	6	6	6	7	3	1
7	..	1	..	..	1	6	13	21	25	16	7	2
..	..	..	1	6	11	16	10	11	15	5	2	2
15	3	3	4	5	5	2	4	4	2	1	..	1
215	2	..	..	..	..	..	..	..	1	.	..	5
43	1	..	..	..	3	2	1	2	..	..	..	..
3	..	..	..	..	..	1	..	..	1	..	..	..
16	..	..	..	..	1	..	..	..	..	..	..	..
2	..	..	..	1	7	7	3	4	3	1	..	1
..	..	..	..	..	..	1	4	2	..	..	..	..
1	1	..	3	2	5	10	5	8	7	1	2	..
641	40	20	17	24	63	107	152	211	179	93	26	30
17	2	1	1	3	3	..	1	..	..	..	..	..
3	..	..	..	..	..	..	..	..	..	..	..	1
20	2	1	1	3	3	..	1	..	..	..	..	1
18	23	34	34	32	91	106	114	157	112	42	9	25
4	5	4	4	3	3	5	6	1	5	2	1	1
..	..	2	..	2	4	3	7	11	10	7	..	1
..	..	..	..	2	9	11	20	31	31	12	..	3
4	4	5	6	4	10	22	24	29	20	8	2	4
..	1	..	..	..	2	4	5	9	3	..	..	..
..	..	..	..	1	..	1	6	6	2	3	..	1
..	..	..	..	..	..	..	1	5	8	8	1	1
2	..	..	1	1	5	4	6	10	1	2	..	..
1	..	1	..	1	..	1	2	1	..	..	..	..
2	..	1	..	..	..	2	2	3	3	3	1	..
31	33	47	45	46	124	159	193	263	195	87	14	36
248	33	1	..	..	..	1	..	..	..	..	..	1
28	4	..	..	1	..	..	1	1	1	..	1	..
1	..	..	..	..	1	..	1	..	..	..	..	..
..	..	..	..	..	1	2	6	6	11	7	..	..

Deaths of Females, by Age and Cause of Death,

Cause of Death.	All Ages.	0	1	2	3	4
Bronchitis	912	403	122	37	25	5
Chronic bronchitis	252	4	7	1	..	..
Pneumonia	2,560	504	343	136	70	43
Pleurisy	66	6	3	3	3	1
Hydrothorax, empyema	21	3	3	5	2	..
Congestion of lungs	54	18	1	2	1	..
Hæmorrhage of lungs	8	..	..	..	..	..
Other diseases of respiratory system	27	3	2	2	1	..
Total diseases of respiratory system	4,256	972	563	256	160	85
Diseases of Digestive System.						
Stomatitis	11	6	2	1	..	..
Dentition	66	36	26	4	..	..
Tonsilitis, quinsy	8	1	..	1	..	1
Gastritis	133	26	4	3	3	..
Gastro-enteritis	348	251	42	9	3	4
Ulcer of stomach	29	1	..	..	..	..
Enteritis	88	55	11	2	1	1
Ulcer of intestine, chronic diarrhœa	51	6	1	..	..	..
Ileus, obstruction of intestine	50	8	2	2	1	..
Stricture or strangulation of intestine	4	1	..	..	..	..
Typhlitis, perityphlitis, per. veriform appendix	31	..	..	1	..	..
Hernia	62	1	..	..	..	..
Peritonitis	143	9	4	4	..	2
Hepatitis	40	..	..	..	..	.
Cirrhosis	134	1	..	..	..	..
Jaundice	15	8	..	..	..	..
Gall-stones, biliary colic, etc	13	1	..	..	..	..
Other diseases of liver	22	2	..	..	.	..
Other diseaset of digestive system	82	30	5	3	1	..
Total diseases of digestive system	1,330	443	97	30	9	8
Diseases of Lymphatic System and Ductless Glands.						
Exophthalmic goitre (Basedow's disease)	2	..	..	..	..	..
Addison's disease	3	..	..	..	..	..
Other diseases of lymphatic system	4	3	..	..	..	..
Total diseases of lymphatic system	9	3	..	..	..	..

Year ending December 31, 1891—(Continued).

Total Under 5	5	10	15	20	25	35	45	55	65	75	85	Colored.
592	13	4	6	3	16	23	46	65	73	50	21	24
12	1	1	3	6	7	11	33	52	65	51	10	5
1,096	61	23	56	81	215	201	239	245	196	118	29	72
16	1	1	1	8	9	2	8	8	8	3	1	..
13	1	..	1	1	1	1	2	1	..	..	..	..
22	3	..	..	1	4	..	7	4	4	5	4	2
..	..	..	1	1	3	..	1	..	1	1	..	1
8	..	..	2	..	2	1	2	3	4	5	..	2
2,036	117	30	70	102	259	248	346	385	363	240	66	106
9	1	..	..	..	..	..	1	..	..	..	..	..
66	..	..	..	..	..	..	..	..	..	..	..	3
3	1	..	..	1	..	1	1	..	1	..	..	..
36	3	2	..	4	13	16	8	21	17	12	1	..
309	5	2	..	1	5	3	8	4	6	3	2	3
1	1	..	3	4	8	6	3	1	2	..	..	1
70	1	..	..	2	2	1	4	5	2	..	1	2
7	..	..	..	..	1	4	9	11	13	5	1	..
13	4	..	..	..	7	6	4	6	9	1	..	..
1	2	..	..	..	1	..	..	..	..	..	..	..
1	5	3	2	3	2	6	4	3	2	..	..	..
1	..	..	..	..	2	13	19	11	14	2	..	..
19	6	7	8	17	23	25	19	10	8	1	..	2
..	..	1	..	2	7	12	6	4	7	1	..	..
1	..	1	1	1	20	32	38	21	12	6	1	2
8	..	..	..	1	1	1	1	1	2	..	..	1
1	..	..	..	1	1	2	3	4	..	1	..	..
2	..	..	..	2	3	1	7	4	1	2	..	..
39	..	1	2	3	6	5	12	4	6	2	2	1
587	29	17	16	42	102	134	147	110	100	36	8	15
..	..	..	..	..	1	1	..	..	..	..	..	..
..	..	1	..	1	..	..	1	..	..	..	..	..
3	..	..	..	..	..	..	1	..	..	..	..	..
3	..	1	..	1	1	1	2	..	..	..	..	..

Deaths of Females, by Age and Cause of Death,

Cause of Death.	All Ages.	0	1	2	3	4
Diseases of Urinary System.						
Acute nephritis	173	10	2	3	3	5
Bright's disease, albuminuria	963	2	1	2	4	2
Uræmia, suppression of urine	31	5	1	1	1	..
Calculus	7	1	..	..	..	..
Diseases of bladder and prostate gland	19	1	..	..	..	..
Other diseases of urinary system	8	..	..	..	..	..
Total diseases of urinary system	1,201	19	4	6	8	7
Diseases of Organs of Generation.						
Ovarian diseases	48	..	..	..	..	..
Diseases of uterus and vagina	93	..	..	..	..	..
Pelvic abscess	17	..	..	..	..	..
Perineal abscess	1	..	..	..	..	..
Other diseases of organs of generation	15	..	..	..	..	..
Total diseases of organs of generation	174	..	..	..	..	..
Diseases of Parturition.						
Abortion, miscarriage	48	..	..	..	..	..
Puerperal convulsions	55	..	..	..	..	..
Puerperal mania	1	..	..	..	..	..
Placenta prævia, flooding	24	..	..	..	..	..
Post-partum hæmorrhage	11	..	..	..	..	..
Other diseases of parturition	32	..	..	..	..	..
Total diseases of parturition	171	..	..	..	..	..
Diseases of Organs of Locomotion.						
Caries, necrosis	7	..	1	..	1	..
Arthritis, osteitis, periostitis	3	..	..	..	..	..
Spinal disease	15	1	..	..	..	..
Hip disease	11	..	..	..	..	1
Other diseases of locomotor system	11	1	..	1	..	..
Total diseases of organs of locomotion	47	2	1	1	1	1

Year ending December 31, 1891—(Continued).

Total Under 5	5	10	15	20	25	35	45	55	65	75	85	Colored.
23	11	6	8	13	24	25	30	17	10	3	3	2
11	10	10	10	28	130	188	204	167	133	63	9	38
8	..	..	..	2	5	4	8	..	3	..	1	1
1	..	..	..	1	1	..	1	1	2	..	..	1
1	1	..	..	..	2	2	2	5	2	3	1	..
..	..	..	..	..	3	1	2	..	2	..	..	..
44	22	16	18	44	165	220	247	190	152	69	14	42
..	..	..	1	4	7	16	8	5	4	3	..	1
..	..	..	2	12	25	33	11	7	2	1	..	6
..	..	..	..	2	7	5	1	1	..	1	..	1
..	..	..	..	..	..	..	..	..	..	1	..	..
..	..	1	..	3	5	5	1	..	..	..	..	..
..	..	1	3	21	44	59	21	13	6	6	..	8
..	..	..	4	8	19	16	1	..	..	..	..	5
..	..	..	7	18	23	7	..	..	..	..	..	2
..	..	..	..	..	1	..	..	..	..	..	..	..
..	..	..	2	1	11	10	..	..	..	..	..	1
..	..	..	..	1	6	3	1	..	..	..	..	..
..	..	..	1	6	13	12	..	..	..	..	..	..
..	..	..	14	34	73	48	2	..	..	..	..	8
2	..	..	4	..	..	..	1	..	..	..	..	1
..	..	..	..	..	..	..	2	1	..	..	..	..
1	4	3	1	4	..	..	..	..	1	1	..	..
1	10	..	..	..	..	..	..	..	..	..	..	..
2	2	..	..	1	..	..	3	2	1	..	..	3
6	16	3	5	5	..	..	6	3	2	1	..	4

Death of Females, by Age and Cause of Death

Cause of Death.	All Ages.	0	1	2	3	4
Hanging	4	..	..	..	..	..
Leaps	10	..	..	..	..	..
Poison	30	..	..	..	..	..
Other methods	1	..	..	..	..	..
Total suicides	61	..	..	..	..	..
Total violence	532	44	17	13	19	16
VIII.—Ill-defined or Not Specified Causes.						
Marasmus, inanition	734	684	35	6	2	1
Injury at birth	56	56	..	..	..	..
Total ill-defined causes	790	740	35	6	2	1
I.—Specific febrile diseases	4,750	1,657	702	402	267	169
II.—Parasitic diseases	13	10	..	..	..	..
III.—Dietetic diseases	85	6	..	..	..	..
IV.—Constitutional diseases	3,408	213	118	52	32	18
V.—Developmental diseases	880	554	1	1	1	..
VI.—Local diseases	10,097	1,898	810	363	198	127
VII.—Violence	532	44	17	13	19	16
VIII.—Ill-defined causes	790	740	35	6	2	1
Total, all causes	20,555	5,122	1,683	837	519	331

Year ending December 31, 1891—(Continued).

Total Under 5.	5	10	15	20	25	35	45	55	65	75	85	Colored.
..	..	..	..	..	..	..	2	2	1	..	..	..
..	..	..	..	..	1	2	1	1	..	..	..	..
2	..	..	..	..	1	1	3	2	3	2	1	..
5	..	..	..	..	..	1	..	..	..	..	..	..
1	..	..	..	..	..	1	..	..	..	..	..	..
20	2	..	..	3	1	3	3	3	..	..	..	1
28	2	..	..	3	3	8	9	8	4	2	1	1
3,396	261	136	189	325	837	978	1,126	1,183	1,003	534	129	251
37	21	2	3	3	10	16	22	19	11	10	3	1
2	..	1	1	..	..	2	..	2	..	..	..	..
23	12	1	14	9	11	9	13	5	3	..	..	3
3	..	..	2	3	1	2	2	2	..	..	..	..
2	1	1	..	..	2	3	1	1	1	1	..	..
28	..	1	6	6	2	1	1	2	2	..	..	..
7	..	..	1	1	1	1	3	..	3	..	..	..
2	..	1	..	8	29	32	10	5	3	1	..	..
1	..	..	..	1	3	1	..	1	..	..	..	..
105	34	7	27	31	59	67	52	37	23	12	3	4
..	..	..	..	..	1	1	..	..	..	..	..	..
..	..	..	1	..	..	1	..	1	..	..	..	..
1	..	..	..	..	3	..	..	..	..	..	..	..
3	..	..	..	..	..	..	1	1	..	..	..	..
4	..	..	1	..	4	2	1	2	..	..	..	..
..	..	..	..	1	2	1	1	1	..	..	..	..
..	..	..	..	1	..	2	..	..	1	..	..	..
..	..	..	..	..	..	..	..	1	..	..	..	..
..	..	..	..	2	3	..	..	..	..	..	..	..

Mortality from the Principal Causes, by Months, wi

Estimated population, July 1, 1891, 1,680,7

METEOROLOGY. Mean barometer	29.903	29.952	29.973	29.877
Mean humidity	61	66	60	69
Maximum humidity	87	89	82	100
Minimum humidity	38	31	26	34
Inches of rain	6.12	4.12	3.61	2.38
Mean temperature (Fahr.)	33.82	36.48	35.78	49.73
Maximum temperature (Fahr.)	54	59	58	80
Minimum temperature (Fahr.)	17	14	9	29
Cause of Death.	**January.**	**February.**	**March.**	**April.**
Total, all causes	3,334	3,026	3,854	5,048
Cerebro-spinal meningitis	13	18	24	27
Diphtheria	90	136	127	116
Typhoid fever	14	11	17	13
Erysipelas	15	29	19	18
Malarial fevers	14	8	13	11
Measles	105	63	67	84
Scarlatina	88	115	100	169
Small-pox	....	....	1	1
Whooping-cough	52	36	43	47
Cholera morbus	....	....	....	....
Other diarrhœal diseases	47	52	62	79
Diarrhœal diseases under 5 years	32	41	46	59
Other zymotic diseases	22	15	62	521
Cancer	60	63	102	79
Rheumatism	15	19	19	14
Phthisis	468	378	521	508
Other constitutional diseases	93	122	110	117
Apoplexy	77	71	81	75
Convulsions	50	41	49	70
Meningitis and encephalitis	65	68	103	108
*Other diseases of nervous system	90	78	80	83

* Sunstroke not included in diseases of the nervous system.

Year ending December 31, 1891—(Continued).

Total Under 5	5	10	15	20	25	35	45	55	65	75	85	Colored.
..	..	..	..	..	..	1	2	..	1	..	..	..
..	..	..	..	2	4	2	1	1	..	..	..	..
..	..	..	1	8	7	7	3	1	3	..	..	..
..	..	..	..	..	..	..	1	..	..	..	..	..
..	..	..	1	14	16	13	8	4	5	..	..	..
109	34	7	29	45	79	82	61	43	28	12	3	4
728	3	..	..	..	..	..	..	..	1	2	..	13
56	..	..	..	..	..	..	..	..	..	..	..	2
784	3	..	..	..	..	..	..	..	1	2	..	15
3,197	356	48	65	133	270	163	107	131	158	83	39	84
10	1	..	..	..	1	1	..	..	..	..	..	..
6	..	1	2	9	25	21	13	6	1	1	..	1
433	56	66	169	350	775	567	437	294	198	56	7	114
557	1	2	..	..	..	..	1	25	75	125	94	31
3,396	261	136	189	325	837	978	1,126	1,183	1,003	534	129	251
109	34	7	29	45	79	82	61	43	28	12	3	4
784	3	..	..	..	..	..	..	..	1	2	..	15
8,492	712	260	454	862	1,987	1,812	1,745	1,682	1,464	813	272	500

Mortality from the Principal Causes, by Months, with

Estimated population, July 1, 1891, 1,680,776.

METEOROLOGY. Mean barometer	29.903	29.952 *	29.973	29.877
Mean humidity	61	66	60	69
Maximum humidity	87	89	82	100
Minimum humidity	38	31	26	34
Inches of rain	6.12	4.12	3.61	2.38
Mean temperature (Fahr.)	33.82	36.48	35.78	49.73
Maximum temperature (Fahr.)	54	59	58	80
Minimum temperature (Fahr.)	17	14	9	29

CAUSE OF DEATH.	JANUARY.	FEBRUARY.	MARCH.	APRIL.
Total, all causes	3,334	3,026	3,854	5,048
Cerebro-spinal meningitis	13	18	24	27
Diphtheria	90	136	127	116
Typhoid fever	14	11	17	13
Erysipelas	15	29	19	18
Malarial fevers	14	8	13	11
Measles	105	63	67	84
Scarlatina	88	115	100	169
Small-pox	....	....	1	1
Whooping-cough	52	36	43	47
Cholera morbus	....	....	....	....
Other diarrhœal diseases	47	52	62	79
Diarrhœal diseases under 5 years	32	41	46	59
Other zymotic diseases	22	15	62	521
Cancer	60	63	102	79
Rheumatism	15	19	19	14
Phthisis	468	378	521	508
Other constitutional diseases	93	122	110	117
Apoplexy	77	71	81	75
Convulsions	50	41	49	70
Meningitis and encephalitis	65	68	103	108
*Other diseases of nervous system	90	78	80	83

* Sunstroke not included in diseases of the nervous system.

Ages of Decedents and Meteorology, for the Year 1891.

Death-rate per 1,000 inhabitants, 25.98.

29.926	29.866	29.946	29.930	30.075	29.970	30.061	30.057	29.961
72	68	72	75	73	64	63	59	67
100	89	100	90	90	93	100	85	92
34	38	41	48	41	35	33	31	36
2.45	1.48	3.94	4.51	2.49	2.60	2.30	2.82	38.82
57.77	71.38	72.39	75.45	71.56	54.71	44.26	42.25	53.80
82	97	90	98	91	86	64	66	77
32	54	60	59	54	35	14	14	32

MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	OCTOBER.	NOVEMBER.	DECEMBER.	YEAR.
3,692	3,562	4,251	3,648	3,231	3,249	3,020	3,734	43,659
20	7	16	8	20	14	11	11	189
87	102	97	89	91	110	150	166	1,361
20	23	28	57	65	56	51	29	384
15	19	6	2	5	7	8	19	162
11	19	19	23	25	21	13	8	185
82	79	59	26	15	24	14	45	663
155	121	118	64	42	50	73	125	1,220
....	....	....	....	....	....	....	....	2
40	25	18	21	21	19	13	17	352
....	8	23	21	6	5	....	1	64
79	436	1,233	714	448	257	63	53	3,523
71	419	1,164	655	398	224	47	35	3,191
132	43	16	8	7	13	9	141	989
81	60	65	68	81	86	59	98	902
16	12	13	8	8	8	6	9	147
478	344	387	399	421	414	407	435	5,160
99	96	106	91	107	83	72	99	1,195
76	79	70	87	77	75	98	94	960
37	21	52	35	35	27	35	42	494
72	98	86	68	77	67	52	68	932
71	105	71	78	67	80	66	86	955

Mortality from the Principal Causes, by Months, with Ages of

Cause of Death.	January.	February.	March.	April.
Aneurism	4	5	7	8
Heart diseases	223	142	235	221
Other diseases of circulatory system	15	8	15	12
Bronchitis	174	127	195	333
Croup	66	49	67	50
Pneumonia	502	478	646	1,112
Other diseases of respiratory system	97	67	105	142
Gastritis, gastro-enteritis, enteritis and peritonitis	82	68	79	81
Cirrhosis of liver and hepatitis	28	31	31	39
Other diseases of digestive system	66	65	80	73
Bright's disease and nephritis	220	204	235	270
Premature and preternatural births, cyanosis and atelectasis	113	77	106	100
Puerperal diseases	39	49	41	36
Old age	41	44	51	69
Alcoholism	8	18	32	23
Sunstroke	....	....	....	....
Accident	93	100	104	118
Homicide	5	4	....	6
Suicide	15	26	20	34
Under one month	223	183	225	230
One month and under one year	471	456	558	796
Total under five years	1,241	1,207	1,434	1,789
Sixty-five years and over	370	315	433	800
Males	1,741	1,592	2,056	2,584
Females	1,593	1,434	1,798	2,464
Colored	68	68	111	120

Decedents and Meteorology, for the Year 1891—(Continued).

May.	June.	July.	August.	September.	October.	November.	December.	Year.
4	2	3	5	4	1	4	2	49
215	177	167	174	146	200	185	200	2,285
14	9	9	9	6	5	6	13	121
179	120	82	82	107	124	117	196	1,836
44	31	37	22	48	66	59	70	609
563	352	237	208	242	296	508	674	5,818
90	71	62	64	58	71	93	99	1,019
80	161	256	174	153	135	72	69	1,410
34	35	39	40	37	40	30	41	425
77	77	88	94	67	97	56	70	910
216	198	202	194	164	196	176	226	2,501
105	100	97	100	99	110	99	113	1,219
44	42	24	29	27	25	24	40	420
43	42	35	33	25	30	39	63	515
26	25	25	38	17	23	26	14	275
....	35	5	51	4	....	....	....	95
125	185	128	254	155	118	114	103	1,597
9	3	2	9	4	7	3	4	56
33	37	21	18	22	27	18	29	300
231	217	285	255	260	231	202	241	2,783
526	889	1,573	890	759	664	396	480	8,458
1,390	1,718	2,514	1,713	1,529	1,372	1,038	1,279	18,224
451	305	269	295	236	320	299	528	4,621
1,928	1,894	2,288	1,988	1,723	1,709	1,647	1,954	23,104
1,764	1,668	1,973	1,660	1,508	1,540	1,373	1,780	20,555
66	85	94	70	63	89	67	83	984

Weekly Mortality from the Principal Causes of Death, with Ages

Representing, not the actual mortality

Meteorology.	3 days ending January 3.	Week Ending— Jan. 10.	Jan. 17.	Jan. 24.	Jan. 31.	Feb. 7.	Feb. 14.	Feb. 21.	Feb. 28.	Mar. 7.	Mar. 14.	Mar. 21.
Mean barometer.....	29.677	30.077	29.823	29.879	29.919	29.933	30.044	29.933	29.898	30.070	29.933	30.002
Mean humidity.....	66	55	59	65	62	64	65	69	65	57	59	61
Maximum humidity...	79	78	78	87	80	84	86	86	89	70	77	81
Minimum humidity....	53	38	38	47	39	46	34	48	31	26	31	34
Inches of rain.....	.79	.07	2.38	1.42	1.46	1.38	.52	1.17	1.05	.52	1.89	.70
Mean temp. (Fahr.) ...	36.5	25.7	34.6	36.5	38.9	34.7	34.0	39.7	37.7	26.4	38.3	34.6
Maximum temp.(Fahr.)	54	41	51	53	48	51	43	59	57	39	51	48
Minimum temp. (Fahr.)	18	17	25	23	28	14	21	17	22	9	23	19

Cause of Death.	3 days ending January 3.	Week Ending— Jan. 10.	Jan. 17.	Jan. 24.	Jan. 31.	Feb. 7.	Feb. 14.	Feb. 21.	Feb. 28.	Mar. 7.	Mar. 14.	Mar. 21.
Total, all causes.....	307	744	786	748	737	736	755	751	797	735	813	840
Cerebro-spinal meningitis.	1	5	2	1	3	2	3	6	6	4	7	4
Diphtheria.....	10	14	19	22	28	30	34	30	40	33	31	29
Typhoid fever.....	3	3	3	3	3	2	5	3	2	1	6	1
Erysipelas.....	1	3	3	2	7	4	10	7	7	3	3	3
Malarial fevers.....	2	2	3	4	5	3	2	1	1	2	5	3
Measles.....	11	15	18	33	32	13	19	28	10	15	15	16
Scarlatina	9	16	22	20	23	20	26	30	33	24	25	21
Small-pox.....	..	..	..	..	..	..	..	..	..	..	..	1
Typhus fever.....	..	..	..	..	..	..	..	..	..	..	..	..
Whooping-cough.....	4	8	12	17	11	9	8	9	7	10	5	13
Cholera morbus.....	..	..	..	..	..	..	..	..	..	..	..	..
Other diarrhœal diseases ..	3	10	9	13	11	11	14	14	15	10	11	21
Diarrhœal diseases under 5 years.....	2	7	4	10	9	7	12	12	11	7	9	17
Other zymotic diseases....	..	5	3	3	9	5	6	3	3	6	4	2
Cancer	4	13	11	19	17	14	15	19	14	17	19	25
Rheumatism.....	1	2	3	5	3	2	4	4	4	9	5	3
Phthisis.....	39	110	98	111	105	93	90	95	103	104	119	102
Other constitutional diseases.....	9	16	19	26	17	35	24	30	35	22	27	27
Apoplexy.....	8	19	15	18	18	21	16	14	18	20	20	10
Convulsions.....	7	12	14	7	11	9	9	9	13	11	9	10
Meningitis and encephalitis	5	24	7	14	11	22	9	20	19	16	23	24
Other diseases of nervous system *.....	15	11	32	16	19	16	22	20	20	14	14	13

* Sunstroke not included in diseases of nervous system.

of Decedents, Death-rate and Meteorology for the Year 1891.

but the reported mortality for the year.

29.915	29.772	30.061	29.992	29.789	29.787	29.891	29.870	30.048	29.956	29.932	30.017	29.799	29.784	29.819
61	66	66	77	71	60	74	81	64	71	72	66	72	65	69
82	89	92	100	93	80	100	100	86	88	88	80	89	85	85
37	35	34	48	48	34	40	54	34	43	40	45	45	45	38
.43	.93	.69	.34	.49	..	.56	.77	.16	.96	.14	.39	.84	.11	.40
42.0	40.7	38.9	55.5	57.3	57.1	50.2	58.5	60.8	61.8	67.9	70.8	73.7	75.3	69.2
58	57	50	76	80	78	82	81	82	75	88	86	97	91	80
27	31	29	44	39	36	32	44	42	48	55	54	56	60	59

WEEK ENDING—

Mar. 28.	Apr. 4.	Apr. 11.	Apr. 18.	Apr. 25.	May 2.	May 9.	May 16.	May 23.	May 30.	June 6.	June 13.	June 20.	June 27.	July 4.
895	1,100	1,216	1,347	1,208	961	910	873	777	798	772	743	952	803	922
7	5	5	5	10	6	3	3	7	7	3	2	1	..	3
16	31	30	38	28	12	24	21	8	29	20	27	27	18	21
3	8	2	2	4	3	4	5	4	6	7	6	2	7	2
6	5	6	6	3	3	5	3	2	4	4	4	5	6	1
3	3	3	2	..	4	2	1	4	4	..	4	9	2	6
12	22	18	23	20	14	21	21	19	15	15	24	16	20	16
28	25	35	37	49	37	23	34	29	53	33	34	33	24	24
..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
11	13	20	11	8	3	9	11	10	5	7	6	9	5	5
..	..	..	..	..	..	..	..	..	..	..	..	1	4	4
7	19	28	20	7	17	16	20	20	18	23	36	110	133	236
5	10	20	16	5	14	14	19	17	16	21	35	104	129	228
13	51	110	182	140	78	45	31	26	15	24	11	9	6	5
25	23	21	19	16	19	19	22	16	14	19	14	14	13	12
4	5	2	6	2	3	2	4	1	5	5	3	5	..	3
124	137	128	127	106	114	99	112	108	103	99	98	85	70	72
27	22	23	31	27	28	23	19	31	14	23	21	27	21	24
18	25	16	17	17	19	22	17	14	15	18	19	31	11	10
12	15	17	18	14	16	8	7	8	8	8	4	3	6	11
20	30	27	29	26	21	15	19	15	16	20	18	33	21	19
24	26	17	25	22	15	18	18	13	15	25	22	29	23	18

Weekly Mortality from the Principal Causes of Death, with Age

Representing, not the actual morta

Meteorology.	July 11.	July 18.	July 25.	Aug. 1.	Aug. 8.	Aug. 15.	Aug. 22.	Aug. 29.	Sept. 5.	Sept. 12.	Sept. 19.	Se
Mean barometer	29.929	29.956	30.074	29.865	29.953	29.916	29.888	29.972	30.068	30.104	30.080	30.
Mean humidity	67	75	76	71	73	75	75	75	79	69	71	
Maximum humidity	88	90	100	94	89	87	90	90	90	90	85	
Minimum humidity	41	47	53	45	58	52	49	48	58	41	49	
Inches of rain	.95	.81	.67	1.41	.27	.51	.09	2.94	1.75	.41	.17	
Mean temp. (Fahr.)	70.1	77.0	76.8	69.9	74.5	79.9	76.4	76.4	70.3	68.7	71.5	7
Maximum temp. (Fahr.)	82	90	86	79	91	98	89	83	85	80	91	
Minimum temp. (Fahr.)	60	62	68	60	62	67	66	59	61	54	58	

Cause of Death.	Week Ending— July 11.	July 18.	July 25.	Aug. 1.	Aug. 8.	Aug. 15.	Aug. 22.	Aug. 29.	Sept. 5.	Sept. 12.	Sept. 19.	Se
Total, all causes	957	1,074	947	856	763	1,005	773	826	736	747	728	8
Cerebro-spinal meningitis	5	6	2	1	1	1	1	2	7	6	4	
Diphtheria	27	23	19	21	19	19	22	22	22	21	17	
Typhoid fever	4	6	11	7	8	13	16	15	10	9	19	
Erysipelas	2	1	3	..	1	..	1	..	..	2	3	
Malarial fevers	5	5	2	5	5	5	5	4	7	6	8	
Measles	13	12	16	11	8	8	5	3	5	1	4	
Scarlatina	30	30	23	19	25	14	10	9	13	17	11	
Small-pox	..	..	..	..	..	..	..	..	..	..	..	
Typhus fever	..	..	..	..	..	..	..	..	..	..	..	
Whooping-cough	3	5	5	2	3	6	9	1	4	5	5	
Cholera morbus	3	5	5	7	7	3	6	5	1	1	1	
Other diarrhœal diseases	280	334	265	237	170	231	132	136	134	111	95	11
Diarrhœal diseases under 5 years	270	317	250	213	159	211	112	132	119	97	84	10
Other zymotic diseases	6	4	3	2	2	1	1	3	1	2	1	
Cancer	16	17	10	16	18	13	18	11	26	16	12	
Rheumatism	4	2	4	3	..	4	3	1	..	1	6	
Phthisis	90	91	82	80	74	116	89	98	73	112	101	11
Other constitutional diseases	28	26	17	25	24	26	21	14	15	24	26	
Apoplexy	10	18	17	20	19	27	18	19	11	24	19	
Convulsions	11	8	18	9	8	4	7	14	6	7	4	
Meningitis and encephalitis	14	19	25	19	15	25	12	13	16	15	13	
Other diseases of nervous system *	13	22	18	10	19	20	16	16	13	12	16	

* Sunstroke not included in diseases of nervous system.

Decedents, Death-rate and Meteorology for the Year 1891—(Continued).

but the reported mortality for the year.

30.189	29.867	30.088	29.823	30.004	30 c49	30.067	30.338	29.754	30.095	30.062	30.027	30.053	30.081	29.961
74	69	64	62	58	56	75	63	61	58	56	59	60	55	67
86	93	80	76	81	100	88	82	76	100	80	86	81	72	92
46	51	44	37	35	37	50	33	42	31	32	33	51	33	36
.22	.70	.35	1.25	.30	...	.37	.72	1.21	.59	.55	.02	1.53	.86	38.82
69.5	61.8	52.8	51.3	49.4	41.3	51.0	43.8	48.0	38.6	44.2	37.3	47.8	37.3	53.8
83	86	67	62	67	58	63	64	61	59	57	60	66	53	77
53	49	40	39	35	30	40	26	29	14	34	14	30	26	32

Week Ending—													5 days ending December 31.	Year.
Oct. 3.	Oct. 10.	Oct. 17.	Oct. 24.	Oct. 31.	Nov. 7.	Nov. 14.	Nov. 21.	Nov. 28.	Dec. 5.	Dec. 12.	Dec. 19.	Dec. 26.		
737	722	747	688	737	733	774	714	671	675	734	800	889	754	43,634
2	5	1	4	3	2	4	2	1	4	2	4	1	2	189
26	14	27	20	32	41	37	33	36	32	31	39	46	27	1,363
11	18	12	9	12	14	17	10	9	11	5	5	4	5	384
1	3	..	2	1	1	..	2	3	3	3	4	6	3	161
4	6	4	5	5	5	2	4	3	1	1	3	2	1	187
5	4	10	4	3	3	4	4	5	6	8	17	2	8	664
6	11	5	10	15	11	16	15	29	19	22	33	23	31	1,221
..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
8	7	3	3	4	2	6	6	1	1	4	4	4	4	353
3	2	2	..	1	..	..	..	..	..	..	..	..	..	62
87	84	71	36	34	21	13	21	11	4	10	16	13	10	3,523
79	76	60	31	27	15	11	17	6	3	8	6	11	7	3,185
3	2	4	3	1	1	3	3	1	2	6	10	41	67	971
17	18	20	16	23	11	12	19	14	13	21	23	25	19	902
1	4	2	..	2	..	2	..	2	5	..	..	4	..	145
77	76	87	104	102	93	99	87	101	103	98	97	86	84	5,160
29	20	26	17	11	20	16	20	15	15	26	22	21	17	1,195
14	14	16	19	18	22	24	27	19	19	20	19	21	22	959
12	5	7	9	4	7	6	9	5	16	5	9	11	9	495
18	17	19	8	15	14	16	12	8	12	11	11	18	16	927
18	15	19	21	19	15	15	10	15	17	22	18	14	11	956

Weekly Mortality from the Principal Causes of Death, with Ages

Cause of Death.	3 days ending January 3.	Week Ending— Jan. 10.	Jan. 17.	Jan. 24.	Jan. 31.	Feb. 7.	Feb. 14.	Feb. 21.	Feb. 28.	Mar. 7.	Mar 14.	Ma 21
Aneurism	..	..	..	1	2	1	3	2	..	1	3	
Heart diseases	13	53	49	55	51	41	41	30	29	55	44	6
Other diseases of circulatory system	4	4	1	2	2	4	4	1	2	2	5	
Bronchitis	19	27	38	44	41	40	37	28	30	25	44	4
Croup	2	16	22	11	12	9	13	14	11	15	23	1
Pneumonia	53	123	135	105	91	123	120	106	138	110	99	13
Other diseases of respiratory system	13	21	28	25	16	12	18	24	13	15	23	2
Gastritis, gastro-enteritis, enteritis and peritonitis	6	15	19	23	18	21	16	18	15	19	18	2
Cirrhosis of liver and hepatitis	4	7	6	6	6	8	7	10	8	2	9	
Other diseases of digestive system	5	13	20	17	12	15	12	17	22	15	16	1
Bright's disease and nephritis	17	51	64	34	48	47	58	50	52	45	41	5
Premature and preternatural births, cyanosis and atelectasis	7	27	27	22	24	24	21	22	17	24	27	2
Puerperal diseases	1	8	13	6	9	12	5	11	18	12	12	1
Old age	5	12	7	9	7	9	11	13	9	11	10	3
Alcoholism	1	1	4	..	1	3	5	4	7	4	9	
Sunstroke	..	..	..	..	..	..	..	..	..	..	..	
Accident	12	32	23	17	13	21	28	20	32	23	25	2
Homicide	3	..	1	..	2	..	..	3	..	1	..	
Suicide	..	5	3	4	3	8	2	10	5	4	4	
Under one month	12	51	56	46	55	41	47	53	41	49	53	
One month and under 1 year	49	89	109	111	107	118	121	100	126	100	113	1
Total under 5 years	113	253	285	284	300	289	306	289	320	291	324	3
65 years and over	35	85	98	80	74	81	70	85	84	72	101	
Males	153	369	400	388	390	379	397	386	442	364	459	4
Females	144	375	386	360	347	357	358	365	355	371	354	4
Colored	2	13	17	19	12	18	18	16	13	29	21	
Death-rate	..	23.42	24.73	23.52	23.16	23.12	23.70	23.56	24.99	23.03	25.46	26

Decedents, Death-rate and Meteorology for the Year 1891—(Continued).

Week Ending—														
Mar. 28.	Apr. 4.	Apr. 11.	Apr. 18.	Apr. 25.	May 2.	May 9.	May 16.	May 23.	May 30.	June 6.	June 13.	June 20.	June 27.	July 4.
1	1	2	3	2	1	2	..	..	2	..	..	..	..	2
48	58	58	54	46	45	62	45	51	43	48	39	48	35	31
4	1	6	3	1	2	2	6	1	3	2	4	2	..	2
47	60	83	94	86	53	33	43	47	40	28	28	37	22	22
13	13	14	12	8	11	11	5	10	14	9	7	4	7	11
179	225	289	296	272	176	168	139	112	106	98	84	89	75	56
23	36	37	37	30	24	23	25	17	20	12	12	20	22	17
13	18	14	24	18	21	18	20	19	12	21	19	53	36	65
12	5	8	8	12	6	6	7	7	9	10	9	6	10	6
25	17	12	17	21	17	16	22	15	18	13	13	25	16	19
63	66	67	60	66	60	48	46	46	56	51	43	44	45	44
23	24	20	21	30	26	29	30	14	19	21	22	20	27	25
6	7	8	7	12	6	6	11	12	14	10	7	14	7	10
11	14	17	24	14	9	9	13	11	6	10	9	10	11	9
9	5	13	4	4	1	8	3	3	8	9	4	5	4	8
..	..	..	..	..	..	..	..	..	..	..	..	25	6	5
18	26	14	30	34	37	44	19	27	21	32	26	66	46	42
..	..	..	1	2	2	3	..	1	3	2	1	1	..	1
4	5	5	10	9	8	12	8	6	7	10	9	10	6	6
42	53	50	57	64	56	56	67	36	43	47	55	46	53	57
120	166	176	224	199	146	122	136	112	112	114	125	253	224	343
300	375	399	484	455	353	314	334	290	324	299	324	447	416	544
100	154	193	237	194	134	112	117	94	86	78	69	73	76	69
481	586	605	706	610	495	472	458	406	434	404	405	500	442	464
414	514	611	641	598	466	438	415	371	364	368	338	452	361	458
20	29	27	36	26	21	21	13	17	12	12	22	19	20	25
28.00	34.39	38.00	42.07	37.75	30.04	28.37	27.20	24.20	24.87	24.01	23.10	29.58	24.94	28.61

Weekly Mortality from the Principal Causes of Death, with Ages of

Cause of Death.	Week Ending—											
	July 11.	July 18.	July 25.	Aug. 1.	Aug. 8.	Aug. 15.	Aug. 22.	Aug. 29.	Sept. 5.	Sept. 12.	Sept. 19.	Sept. 26.
Aneurism	1	..	2	..	2	..	1	2	..	..	3	1
Heart diseases	37	47	36	30	40	51	33	39	34	38	38	26
Other diseases of circulatory system	2	2	2	2	1	3	2	..	3	..	3	2
Bronchitis	21	31	8	14	19	16	17	19	26	25	24	28
Croup	6	14	7	6	5	8	5	3	6	10	15	10
Pneumonia	66	54	49	49	47	57	41	54	41	51	54	66
Other diseases of respiratory system	10	11	15	19	10	15	13	13	17	12	15	15
Gastritis, gastro-enteritis, enteritis and peritonitis	49	65	75	40	32	50	46	33	39	32	29	37
Cirrhosis of liver and hepatitis	7	8	11	12	6	13	9	9	6	5	9	12
Other diseases of digestive system	23	20	20	21	9	27	26	23	19	12	13	22
Bright's disease and nephritis	43	49	44	48	44	46	62	31	31	38	35	41
Premature and preternatural births, cyanosis and atelectasis	20	23	24	25	20	32	13	25	21	23	25	23
Puerperal diseases	4	9	4	2	7	5	9	5	7	4	5	8
Old age	6	9	6	9	6	13	6	6	6	7	5	4
Alcoholism	6	2	6	10	7	2	7	14	8	7	3	6
Sunstroke	..	2	2	..	..	37	11	2	1	1	1	..
Accident	28	34	24	23	34	67	41	105	33	32	32	35
Homicide	..	1	1	..	2	1	2	..	5	1	..	2
Suicide	3	8	4	3	3	2	6	2	6	5	6	3
Under one month	63	62	66	72	52	73	50	58	54	58	64	63
One month and under 1 year	386	414	347	275	188	276	154	199	186	168	160	195
Total under 5 years	581	676	550	481	380	492	319	376	369	341	339	384
65 years and over	62	64	49	61	54	89	68	57	55	56	53	55
Males	511	581	495	481	404	548	442	450	374	395	392	441
Females	446	493	452	385	359	457	331	376	362	352	336	370
Colored	19	26	18	19	20	16	11	18	10	17	20	13
Death-rate	29.68	33.29	29.34	26.81	23.61	31.08	23.89	25.52	22.72	23.05	22.45	25.00

Decedents, Death-rate and Meteorology for the Year 1891—(Continued).

Week Ending—													5 days ending December 31.	Year.
Oct. 3.	Oct. 10.	Oct. 17.	Oct. 24.	Oct. 31.	Nov. 7.	Nov. 14.	Nov. 21.	Nov. 28.	Dec. 5.	Dec. 12.	Dec. 19.	Dec. 26.		
..	1	..	..	..	1	..	2	1	..	..	1	1	..	49
31	48	47	36	48	48	50	43	45	36	53	43	51	23	2,287
1	3	1	1	..	..	..	1	3	5	2	4	2	2	120
23	20	31	27	32	23	29	26	34	35	34	43	45	43	1,834
13	9	11	17	19	23	16	11	12	9	12	16	21	10	605
52	46	56	61	98	115	139	120	112	94	112	140	201	139	5,817
15	8	19	20	16	23	19	35	15	12	16	25	18	31	1,020
37	42	35	27	20	16	22	16	16	17	12	17	11	18	1,413
8	11	4	9	13	8	7	8	6	8	10	9	11	4	425
15	25	24	24	19	16	13	12	13	8	19	12	17	12	909
47	35	49	44	48	43	50	42	30	38	45	54	54	46	2,503
29	23	21	27	18	22	30	27	13	28	28	21	25	23	1,224
10	7	4	2	7	4	9	4	7	6	12	2	7	10	414
7	9	6	7	6	8	12	8	9	9	14	11	20	7	510
3	6	4	4	5	6	6	9	6	3	4	3	1	2	275
2	..	..	..	..	..	..	..	..	..	..	..	..	..	95
39	28	28	30	21	39	27	23	24	18	19	22	35	12	1,606
..	4	..	1	..	2	..	1	2	..	2	..	1	1	56
7	9	4	7	5	5	6	5	2	7	5	6	6	5	298
62	50	54	57	39	45	57	43	39	57	56	49	52	53	2,783
192	188	165	124	121	95	104	94	78	82	96	97	123	103	8,461
366	325	336	276	275	267	260	253	217	238	250	273	321	251	18,225
66	73	66	72	76	62	93	80	59	69	96	105	132	111	4,605
396	376	404	371	375	403	444	361	370	347	403	438	461	363	23,069
341	346	343	317	362	330	330	353	301	328	331	362	428	391	20,565
10	16	20	26	19	17	12	17	20	15	18	20	20	11	975
22.70	22.23	22.98	21.15	22.65	22.51	23.76	21.91	20.57	20.68	22.48	24.49	27.20	32.26	25.96

Deaths from Zymotic and Certain Other

Wards.	Area in Acres.	Cerebro-spinal Meningitis.	Diphtheria.	Typhoid Fever.	Erysipelas.	Malarial Fevers.	Measles.	Scarlet Fever.	Small-pox.
First	154	3	11	4	3	..	13	9	1
Second	81	..	1	..	1	..	..	2	..
Third	95	..	..	..	..	..	1	..	..
Fourth	83	3	23	4	4	1	10	23	..
Fifth	168	1	13	4	1	1	2	2	..
Sixth	86	4	14	6	5	5	24	14	..
Seventh	198	14	46	9	6	4	23	88	..
Eighth	183	3	42	10	8	5	17	28	..
Ninth	322	7	20	14	4	5	25	24	..
Tenth	110	6	46	8	4	1	19	71	..
Eleventh	196	2	54	15	9	3	18	85	..
Twelfth	5,504.13	13	228	61	23	58	92	137	..
Thirteenth	107	6	52	4	10	2	38	97	..
Fourteenth	96	4	36	5	10	3	25	22	..
Fifteenth	198	5	9	6	2	3	7	6	..
Sixteenth	348.77	8	37	12	..	4	21	18	..
Seventeenth	331	8	105	24	12	12	29	126	..
Eighteenth	449.89	7	47	18	6	6	16	62	..
Nineteenth	1,480.60	26	202	56	23	18	136	177	..
Twentieth	444	18	119	27	9	4	41	65	..
Twenty-first	411	6	37	29	6	9	16	38	..
Twenty-second	1,529.42	38	123	49	12	16	53	64	..
Twenty-third	4,267.023	6	82	13	3	12	34	55	1
Twenty-fourth	8,050.323	1	14	6	1	13	3	6	..
Total	24,893.156	189	1,361	384	162	185	663	1,220	2

The following wards contain large public institutions, viz.: First Ward—Emigrant Depot; Third Ward—Chambers Street Hospital; Seventh Ward—Gouverneur Hospital; Ninth Ward—St. Vincent's Hospital; Eleventh Ward—St. Francis' Hospital; Twelfth Ward—Ward's and Randall's Island Hospitals; Eighteenth Ward—New York, Post-Graduate and Willard Parker Hospitals; Nineteenth Ward—Presbyterian, German, Mount Sinai, Colored Home, Nursery and Child's and St. Luke's Hospitals, and Foundling Asylum and the Blackwell's Island institutions; Twenty-first Ward—Bellevue Hospital; Twenty-second Ward—Roosevelt and Sloane Maternity Hospitals; Twenty-third Ward—St. Joseph's Hospital and North Brother Island.

Preventable Diseases by Wards, for Year* 1891.

Typhus Fever.	Influenza.	Whooping-cough.	Diarrhœal Diseases.	Rheumatism.	Phthisis.	Bronchitis.	Croup.	Pneumonia.	Puerperal Diseases.	Alcoholism.	Bright's Disease and Nephritis.	All Causes.	In Institutions not Redistributed.	† In Institutions Redistributed.	Total in Institutions.	‡ All Deaths Redistributed.
..	6	2	32	..	101	22	2	73	5	8	42	568	13	169	182	602
..	..	..	3	..	5	..	..	5	..	..	..	37	..	11	11	40
..	..	1	1	..	15	3	2	9	..	1	9	145	31	18	49	124
..	10	5	70	2	146	57	11	134	7	17	58	902	4	240	244	974
..	6	2	31	1	49	20	3	43	2	2	21	334	5	61	66	357
..	9	13	38	1	112	64	7	126	2	8	40	751	10	165	175	804
..	20	18	151	4	202	64	15	370	13	8	122	1,814	21	327	348	1,946
..	16	10	75	3	160	79	19	165	10	10	78	1,234	3	203	206	1,336
..	26	17	81	7	196	78	17	177	14	13	91	1,444	81	196	277	1,479
..	11	12	130	1	149	37	32	230	19	8	61	1,360	1	336	337	1,475
..	25	11	142	1	165	82	21	207	20	10	71	1,487	49	162	211	1,560
..	129	56	642	19	759	238	111	831	62	21	311	6,766	909	580	1,489	6,356
..	12	16	175	4	139	75	33	302	17	2	80	1,640	..	252	252	1,780
..	19	14	83	4	109	146	17	185	10	10	53	1,149	1	177	178	1,246
..	15	3	36	3	113	35	5	91	4	7	70	726	7	186	193	780
..	53	9	81	8	168	51	18	195	11	12	114	1,454	35	200	235	1,540
..	56	13	264	12	352	123	36	365	34	12	147	2,885	36	497	533	3,092
..	38	6	137	10	204	57	16	199	12	11	114	1,693	116	297	413	1,711
..	161	69	558	26	773	168	80	793	65	24	357	6,678	1,561	591	2,152	5,533
..	46	16	187	12	340	114	37	332	22	16	180	2,645	42	407	449	2,825
..	52	13	115	5	254	61	29	239	17	43	142	1,907	253	281	534	1,795
1	108	39	368	15	436	173	58	531	52	23	237	4,138	106	460	566	4,375
..	22	7	150	6	158	68	37	142	16	6	80	1,404	84	103	187	1,432
..	14	..	37	3	55	21	3	74	6	3	23	498	58	32	90	477
1	854	352	3,587	147	5,160	1,836	609	5,818	420	275	2,501	43,659	3,426	5,951	9,377	43,659

* Deaths in institutions redistributed according to residence, where residence was known.

† This column contains the persons who died in institutions, but whose residence before admission to the institution was in the ward to which they are assigned in this table.

‡ In this column the 3,426 deaths in institutions, for which no previous or other residence was given in the certificate of death, have been distributed to the different wards in proportion to the number of deaths known to have been properly assigned to each ward.

Deaths by Certain Diseases, According to Nativity of Deceased,

Cause of Deaths, and Deaths in Institutions.	Place of Birth of Deceased.														
	Austro-Hungary.	Bohemia.	British America.	England.	France.	Germany.	Ireland.	Italy.	Poland.	Russia.	Scotland.	Switzerland.	United States.	Other Nationalities.	Unknown — Nationality.
Total—All causes.....	481	207	170	876	240	4,311	6,860	816	120	515	300	113	27,300	549	801
Diphtheria.....	3	2	..	6	5	20	6	14	1	12	2	..	1,238	7	45
Measles.....	4	..	..	1	..	7	3	14	..	10	..	..	569	..	58
Scarlatina.....	12	2	2	4	..	28	16	7	4	29	2	1	1,089	6	18
Diarrhœal diseases.....	13	..	2	14	3	98	158	20	2	28	4	..	3,126	8	111
Cancer.....	22	6	10	34	13	257	222	16	5	29	10	2	254	22	..
Insanity.....	8	1	2	12	3	51	55	4	1	2	..	1	72	7	..
Heart diseases.....	37	17	10	94	19	476	563	51	8	18	32	9	900	41	11
Phthisis.....	83	59	35	153	38	663	1,204	143	12	90	39	32	2,454	141	14
Pneumonia.....	78	25	21	122	20	477	994	173	16	56	46	10	3,616	62	96
Cirrhosis of liver and hepatitis.....	7	2	4	13	8	95	121	14	..	7	6	2	137	7	2
Bright's disease and nephritis.....	27	15	19	89	21	398	763	40	10	34	25	9	982	39	30
Old age.....	4	9	1	14	10	104	221	2	2	10	8	1	122	4	1
Alcoholism.....	1	1	1	16	2	38	91	4	1	1	5	1	104	7	2
Sunstroke.....	1	1	..	1	1	12	32	2	..	1	1	..	39	1	3
Homicide.....	2	..	..	2	..	4	7	8	..	..	..	..	31	..	2
Suicide.....	13	5	2	12	10	106	27	1	3	5	2	7	84	9	14
Inanition, atrophy, marasmus, etc.....	..	..	1	2	..	7	2	2	..	1	..	..	1,354	1	160
Other causes.....	166	62	60	287	87	1,470	2,375	301	55	182	118	38	11,129	181	237
Died in institutions.....	172	22	14	263	10	1,196	2,138	240	34	220	91	41	4,015	214	557

Deaths of Persons 100 Years of Age

Date.	Name.	Age.	Nativity.	Cause of Death.
Mar. 3	Catharine Kinney.....	100	Ireland.....	Meningitis.
" 8	Mary Shevelock.....	100	"	Old age.
Apr. 19	Andrew Horan.....	102	"	Pneumonia.
May 2	John Downey.....	104	"	Old age.
June 2	Rodie Culver.....	106	United States.....	Marasmus.
" 6	Ellen Croft.....	100	England.....	Diarrhœa.

of Parents of Deceased, and Color, for the Year 1891.

Place of Birth of Parents of Deceased.																	
Austro-Hungary.	Bohemia.	British America.	England.	France.	Germany.	Ireland.	Italy.	Poland.	Russia.	Scotland.	Switzerland.	United States.	Other Nationalities.	Mixed Nationalities.	Unknown Nationality.	Total.	Colored.
1,286	556	104	939	280	7,594	11,453	2,350	300	1,468	400	142	7,883	756	5,124	3,024	43,659	983
48	16	4	17	7	240	167	77	11	66	11	3	316	26	288	64	1,361	10
26	3	1	5	1	74	83	76	5	29	2	2	142	4	97	113	663	7
74	19	2	13	1	228	140	28	25	114	7	2	257	16	241	53	1,220	3
167	86	6	49	19	578	525	206	31	176	20	7	765	64	668	219	3,587	82
20	6	2	35	10	250	247	16	4	29	11	2	151	20	37	62	902	16
5	1	1	12	1	41	66	1	1	3	..	..	31	5	6	45	219	2
42	21	2	81	20	544	751	52	11	20	24	6	373	38	151	150	2,286	64
80	61	19	114	40	1,009	2,158	158	15	87	44	32	617	127	339	260	5,160	185
241	72	20	124	27	860	1,615	447	41	280	60	11	1,002	95	607	316	5,818	137
7	2	2	16	4	103	166	15	..	7	6	2	45	7	16	21	425	3
33	19	7	75	18	484	1,007	45	8	38	26	10	372	39	129	191	2,501	72
3	9	1	14	8	104	219	2	2	10	9	5	72	6	15	34	513	19
..	1	3	6	3	41	126	4	1	1	5	..	20	5	12	47	275	..
1	1	..	..	1	15	36	7	1	..	1	..	13	2	11	6	95	1
1	..	1	1	..	8	14	9	..	..	..	..	9	..	3	10	56	1
13	5	3	13	7	115	40	2	2	4	1	7	30	8	7	43	300	1
31	30	1	19	3	122	117	63	11	44	5	7	270	7	259	541	1,530	29
494	204	29	345	110	2,772	3,975	1,142	131	560	168	46	3,398	287	2,238	849	16,748	351
181	23	37	240	77	1,221	2,828	231	56	325	92	35	1,080	189	534	2,228	9,377	287

and Over, during the Year 1891.

Date.	Name.	Age.	Nativity.	Cause of Death.
July 26	Abbey Rich	101	United States	Capillary bronchitis.
Aug. 14	William Butcher	116	"	Cerebral hæmorrhage.
Sept. 21	Susan Beatty	102	Ireland	Old age.
" 30	Isaac Brandenstein	100	Germany	"
Oct. 21	James O'Connor	10	Ireland	"

Deaths by Suicide during the

Nativity.	Cut and Stab.		Drowning.		Gunshots.		Hanging.		Leap.		Strangulation.		Illuminating Gas.		Arsenic.		Aconite.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Austro-Hungary	..	..	..	..	3	2	1	1	1	1	..	..	1	..	..	..	..	..
Bohemia	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..
British America	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
England	2	1	..	..	4	..	..	..	..	1	..	..	1	..	..	..	..	..
France	2	..	..	..	2	..	4	..	..	..	..	..	..	2	..	..	..	..
Germany	5	..	3	1	36	..	24	3	4	1	1	1	7	1	2	..	..	..
Ireland	3	3	1	..	4	..	2	..	1	1	..	..	..	..	..	1	..	..
Italy	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Poland	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..
Russia	..	..	..	..	2	..	2	..	..	1	..	..	..	..	..	..	..	..
Scotland	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Switzerland	1	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	..	..
United States	6	..	2	..	27	3	9	..	5	5	1	..	2	3	..	..	1	..
Unknown	1	..	..	..	6	..	1	..	..	..	..	..	1	..	..	..	..	..
Other foreign countries	..	..	1	..	3	..	1	..	1	..	..	..	..	..	..	..	..	..
Total	20	4	8	1	99	5	46	4	12	10	2	1	13	6	2	1	1	..

Ages of

United States.		Foreign.		15–25.		25–45.	
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
61	23	178	38	24	14	116	30

Year ending December 31, 1891.

Ammonia.		Carbolic Acid.		Cyanide of Potassium.		Chloroform.		Morphine.		Muriatic Acid.		Opium.		Paris Green.		Prussic Acid.		Ether.		Corrosive Sublimate.		Rough-on-rats.		Belladonna.		Total by Sexes.		Total, both Sexes.
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	1	..	..	..	8	5	13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	5	..	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	2
..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	..	..	..	..	..	..	..	..	..	..	9	3	12
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	2	10
..	..	..	1	1	..	..	..	2	1	1	..	2	..	1	1	1	1	1	..	..	..	1	2	..	..	92	14	106
..	..	1	1	..	..	..	..	..	..	..	..	1	..	3	4	..	..	..	..	1	..	..	..	..	..	17	10	27
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	3
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1	5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	2	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	7
..	..	1	5	1	..	2	..	1	..	..	..	..	..	3	3	..	..	..	..	..	..	..	4	..	..	61	23	84
..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	..	1	13	1	14
..	..	..	..	1	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	8	1	9
..	..	2	7	3	..	3	..	3	2	1	..	5	..	10	10	2	1	1	..	1	..	5	7	..	1	239	61	300

Suicides.

45–65.		65 and Over.		Total by Sexes.		Total, both Sexes.
Male.	Female.	Male.	Female.	Male.	Female.	
84	12	15	5	239	61	300

Deaths by Age and Sex and Percentage of Each Age

TOTAL NUMBER

Age.	January.		February.		March.		April.		May.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F
Under 1 year	373	321	354	284	441	343	566	460	407	350
1 to 5 years	297	250	266	303	327	323	395	368	323	310
5 to 10 years	60	62	62	59	53	70	74	83	68	63
10 to 15 years	14	24	16	22	21	23	24	28	28	30
15 to 20 years	49	39	26	30	45	34	33	46	34	45
20 to 25 years	69	70	67	65	81	78	90	99	79	86
25 to 35 years	210	166	157	153	247	193	284	237	210	177
35 to 45 years	194	178	188	123	227	164	294	204	225	155
45 to 55 years	184	126	176	125	228	177	276	218	189	140
55 to 65 years	135	143	131	103	174	173	217	252	165	157
65 to 75 years	101	123	99	92	144	130	193	259	144	142
75 years and over	55	91	50	75	68	90	138	210	56	109
Total	1,741	1,593	1,592	1,434	2,056	1,798	2,584	2,464	1,928	1,764

PERCENTAGE OF EACH AGE

Under 1 year	.85	.74	.81	.65	1.01	.79	1.30	1.05	.93	.83
1 to 5 years	.68	.57	.61	.69	.75	.74	.90	.84	.74	.71
5 to 10 years	.14	.14	.14	.14	.12	.16	.17	.19	.16	.14
10 to 15 years	.03	.05	.04	.05	.05	.05	.05	.06	.06	.07
15 to 20 years	.11	.09	.06	.07	.10	.08	.08	.11	.08	.10
20 to 25 years	.16	.16	.15	.15	.19	.18	.21	.23	.18	.20
25 to 35 years	.48	.38	.36	.35	.57	.44	.65	.54	.48	.41
35 to 45 years	.44	.41	.43	.28	.52	.38	.67	.47	.52	.36
45 to 55 years	.42	.29	.40	.29	.52	.41	.63	.50	.43	.32
55 to 65 years	.31	.33	.30	.24	.40	.40	.50	.58	.38	.35
65 to 75 years	.23	.28	.23	.21	.33	.30	.44	.59	.33	.33
75 years and over	.13	.21	.11	.17	.16	.21	.32	.48	.13	.25
Total	3.99	3.65	3.65	3.28	4.71	4.12	5.92	5.64	4.42	4.04

Period to Total Mortality during the Year 1891.

OF DEATHS.

June.		July.		August.		September.		October.		November.		December.		Total.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
616	490	997	861	612	533	531	488	490	405	338	260	394	327	6,119	5,122
339	273	351	305	282	286	251	259	243	234	246	194	293	265	3,613	3,370
56	51	65	54	52	45	48	45	54	49	53	58	66	73	711	712
26	27	19	11	22	21	17	14	22	22	15	19	22	19	246	260
36	40	40	35	50	46	36	28	36	32	41	42	33	37	459	454
60	65	78	67	93	76	77	54	68	68	64	59	67	75	893	862
171	146	170	148	219	142	184	157	182	143	204	145	231	180	2,469	1,987
176	144	182	116	228	138	187	135	179	146	217	146	211	163	2,508	1,812
159	133	132	117	175	108	154	118	164	152	190	150	231	181	2,258	1,745
122	127	130	114	120	105	119	93	123	117	148	132	172	166	1,756	1,682
90	108	77	81	85	104	78	72	103	113	81	88	148	152	1,313	1,464
43	64	47	64	50	56	41	45	45	59	50	80	86	142	729	1,085
1,894	1,668	2,288	1,973	1,988	1,660	1,723	1,508	1,709	1,540	1,647	1,373	1,954	1,780	23,104	20,555

PERIOD TO TOTAL MORTALITY.

1.41	1.12	2.28	1.97	1.40	1.22	1.22	1.12	1.12	.93	.77	.60	.90	.75	14.01	11.73
.78	.63	.80	.70	.65	.66	.58	.59	.56	.54	.56	.44	.67	.61	8.27	7.72
.13	.12	.15	.12	.12	.10	.11	.10	.12	.11	.12	.13	.15	.17	1.63	1.63
.06	.06	.04	.02	.05	.05	.04	.03	.05	.05	.03	.04	.05	.04	.56	.60
.08	.09	.09	.08	.11	.11	.08	.06	.08	.07	.09	.10	.08	.08	1.05	1.04
.14	.15	.18	.15	.21	.17	.18	.12	.16	.16	.15	.14	.15	.17	2.05	1.97
.39	.33	.39	.34	.50	.33	.42	.36	.42	.33	.47	.33	.53	.41	5.66	4.55
.40	.33	.42	.27	.52	.32	.43	.31	.41	.33	.50	.33	.48	.37	5.75	4.15
.36	.30	.30	.27	.40	.25	.35	.27	.38	.35	.44	.34	.53	.41	5.17	4.00
.28	.29	.30	.26	.27	.24	.27	.21	.28	.27	.34	.30	.39	.38	4.02	3.85
.21	.25	.18	.19	.19	.24	.18	.16	.24	.26	.19	.20	.34	.35	3.08	3.35
.10	.15	.11	.15	.11	.13	.09	.10	.10	.14	.11	.18	.20	.33	1.67	2.49
4.34	3.82	5.24	4.52	4.55	3.80	3.95	3.45	3.90	3.53	3.77	3.14	4.48	4.08	52.92	47.08

Interments of Deceased Persons for Six Years ending December 31, 1891.

Location of Interments.	1886.	1887.	1888.	1889.	1890.	Average for Five Years Preceding 1891.	1891.
City Cemetery	3,733	3,936	3,956	3,815	3,907	3,869.4	4,264
Cemeteries outside of New York City	31,848	33,276	34,352	33,961	34,495	33,586.4	37,675
Cemeteries inside of New York City	1,749	1,726	1,834	1,807	1,828	1,788.8	1,695
Ward's Island*	115	150	178	108	31	116.4	....
Total interments	37,330	38,938	40,142	39,583	40,230	39,244.6	43,634
Percentage of pauper burials to total	10.00	10.11	9.85	9.64	9.71	9.86	9.77

* Immigrant Hospital and Cemetery now abandoned.

Deaths in Institutions during the Year 1891.

Almshouse	570	Mount Sinai Hospital	261
Babies' Hospital	56	New York Hospital	293
Bellevue Hospital	1,539	North Brother Island Hospital	132
Bloomingdale Lunatic Asylum	38	Nursery and Child's Hospital	115
Barge Office	5	Post-Graduate Hospital	106
Chambers Street Hospital	120	Presbyterian Hospital	180
Charity Hospital	605	Randall's Island Hospital	173
Colored Home Hospital	127	Roosevelt Hospital	267
Foundling Asylum	498	St. Francis' Hospital	272
French Hospital	45	St. Joseph's Hospital	343
German Hospital	186	St. Luke's Hospital	175
Gouverneur Hospital	182	St. Vincent's Hospital	273
Harlem Hospital	124	St. Mark's Hospital	64
Home for Aged (Little Sisters of the Poor)	109	Skin and Cancer Hospitals	97
Home for Incurables	50	Sloane Maternity Hospital	53
Homœopathic Hospital (Ward's Island)	264	Ward's Island Emigrant Hospital	1
House of Rest for Consumptives	35	Willard Parker Hospital	182
Infant's Hospital (Randall's Island)	655	Woman's Hospital	33
Insane Asylum (Ward's Island)	286	Workhouse	54
Lunatic Asylum (Blackwell's Island)	135	Other institutions	620
Manhattan Hospital	54	Total	9,377

RECAPITULATION.

Prisons	96	Homes for Aged	228
Hospitals	6,948	Almshouse	579
Lunatic Asylums	459	Other institutions	339
Institutions for Children	728	Total	9,377

Deaths by Accidents and Negligence during the Year 1891.

Burns and scalds (including 14 by kerosene, 2 by turpentine, 1 by carbolic acid, 1 by explosion of gasoline, 2 by explosion of naphtha, 1 by benzine and the following deaths at fires: No. 197 Mercer street, 1; No. 902 Union avenue, 4; No. 37½ Allen street, 1; No. 201 East Seventy-fourth street, 1; No. 9 Spruce street, 1; Nos. 68–74 Park place, 35; No. 62 Park place, 1; Nassau and Fulton streets, 2; No. 52 Dominick street, 2; No. 39 Baxter street, 1; No. 12 East Ninetieth street, 1; One Hundred and Thirty-fifth street and North river, 1; No. 316 Delancey street, 1)	178
Drowning (including 1 in sewer, 1 in vessel of water, 1 in tub of water, 1 in pail of water)	193
Fractures and contusions (including 28 by fall of heavy bodies, 10 by machinery, 7 by being crushed by elevators, 5 kicked by horses; knocked down by horses, 4; caving in of mine, embankment, wall, 3; while diving, 2; caught in elevators, 2; injured by elevator, 1; struck by pile-driver, 1; struck by crank of coal wagon, 1; while turning somersault, 1)	181
Suffocation (including 56 overlaid or at mother's breast, 1 by coal gas, 1 by vomiting under influence of chloroform, 1 by lodgment of meat in œsophagus, 1 by nipple of bottle being drawn into throat, 3 by lodgment of meat in throat, 1 by grain in grain car, 1 while intoxicated, 1 by food, 1 by ale, 1 by peanut shell, and the following deaths at fires: 4 at No. 37½ Allen street, 3 on steamship "City of Richmond," 2 at No. 215 East Twenty-ninth street, 1 at No. 112 Bleecker street, 25 at Nos. 68–74 Park place, 2 at No. 52 Dominick street)	110
Falls (including 79 from windows, 77 down stairs, 33 in streets, 27 thrown or falls from wagons, trucks, etc., 24 from roofs, 19 from fire-escapes, 18 from scaffolds, 18 from stoops, steps and down areas, 17 from buildings, 12 down hatchways, 10 down elevators, 10 down airshafts, 12 from ladders, 7 down holds of vessels, 3 falls from or thrown by horses, 1 on meat hook)	388
Poison (including 2 by arsenic, 10 by carbolic acid, 1 by chloroform, 2 etherized during operation, 1 irritant poison, 1 laudanum, 6 by lead, 4 by morphine, 1 by muriatic acid, 7 by opium, 1 by oxalic acid, 1 by pyrogallic acid, 1 by phosphorus, 1 by Paris green, 1 by rough-on-rats, 3 by tobacco, and 35 by illuminating gas, viz.: 1 each at No. 107 East Seventy-third street, No. 112 East Forty-first street, No. 144 East Fifty-second street, No. 246 East Thirty-second street, No. 176 East Eightieth street, No. 247 East Fifty-first street, No. 220 East One Hundred and Twenty-seventh street, No. 105 East One Hundred and Sixteenth street, No. 231 East Twenty-fourth street, No. 50 West Twelfth street, No. 29 West Thirty-first street, No. 210 West Thirty-seventh street, No. 35 West One Hundred and Twenty-fifth street, No. 68 West street, No. 113 West street, No. 206 West street, No. 10 First street, No. 535 Third avenue, No. 657 Sixth avenue, United States Hotel, Chambers Street Hospital; Convent Hill, One Hundred and Twenty-eighth street; Manhattan Athletic Club, No. 284 Greenwich street, No. 14 Washington street, No. 18 Grand street, No. 253 Division street, No. 100 Norfolk street, No. 31 Bowery, No. 203 Front street, 2 at No. 62 Eldridge street, and 3 at No. 10 East Eighty-sixth street)	78
Killed by railroads (including 24 by Hudson River Railroad, 14 by New York and New Haven Railroad, 12 by elevated railroad, 9 by New York and Harlem Railroad, 2 at Grand Central Depot, 1 by New York and Northern Railroad, 2 by West Shore Railroad, 1 by engine at Kingsbridge station, 10 by railroads unspecified, 4 by Fourth avenue cars, 1 by Eighth avenue car, 4 by Second avenue cars, 3 by Third avenue cars, 1 by Sixth avenue car, 1 by Tenth avenue car, 3 by Broadway cars, 1 by Belt Line car, 1 by cable car, 1 by Madison avenue car, 1 by One Hundred and Tenth street car, 2 by Grand street cars, 2 by Christopher street cars, 1 by Houston street car, 1 each by Ninth avenue, First avenue, Seventh avenue, Grand, Houston and Forty-second streets, Madison street and Crosstown cars, and 5 by horse-cars not specified)	112
Killed by street vehicles exclusive of horse-cars	54
Criminal abortion	4
Electric current (including 1 at No. 3 East Thirteenth street and 1 at Fourth avenue and Twenty-first street)	2
Explosion (including 3 by dynamite, 1 by blast, 1 by fire-extinguisher, 1 mineral water siphon, 1 kerosene)	8
Wounds of various parts	54
Fright (runaway horse)	1
Decapitation (including 1 found headless in river)	2
Sunstroke	95
Shock from submersion	1
Traumatic peritonitis by injection	1
Old injuries unspecified	1
Accident unspecified	1
Total deaths by violence (exclusive of homicides, suicides and surgical operations)	1,464

Deaths from Surgical Operations during the Year 1891.

Abdominal section for intestinal perforation, rupture, shock	1
Abdominal section for metritis	1
Abdominal section for cancer of ovaries	1
Abortion	1
Amputation for gangrene of hand	1
Amputation of ankle joint	1
Amputation of osteo-myelitis of femur	1
Amputation of thigh, gangrene	1
Amputation of breast	2
Circumcision	7
Circumcision, erysipelas	2
Circumcision, gangrene of penis	1
Circumcision, septicæmia	2
Colotomy inguinal, peritonitis, intestinal obstruction by adhesions after laparotomy for pyo-salpinx	1
Craniotomy	2
Curetting for endometritis, peritonitis	1
Curetting after placentitis	1
Cystotomy, pubic, septicæmia	1
Cystotomy for calculus	1
Dislocation of clavicle, septicæmia	1
Excision of hip joint	1
Excision of rectum, septicæmia	1
Excision of tongue	1
Gastro-enterostomy for benign stenosis of pylorus	1
Gastrotomy, stricture of œsophagus	1
Herniotomy	1
Hysterectomy, supra-pubic	1
Hysterectomy, operation	1
Hysterectomy, vaginal	2
Hysterectomy, intraligamentous cyst	1
Internal urethrotomy, septicæmia	1
Lithotomy, prostatotomy	1
Laparotomy	7
Laparotomy, intestinal obstruction	2
Laparotomy, removal of ovaries	1
Laparotomy, peritonitis	2
Laparotomy, tumor of uterus	1
Laparotomy, hydro-salpinx	1
Laparotomy, septicæmia	1
Laparotomy, pyo-salpinx	5
Laparotomy, tubercular degeneration of ovaries	1
Laparotomy, salpingitis	2
Laparotomy, salpingo-oöphoritis	2
Laparotomy, stricture of colon	1
Laparotomy, septic peritonitis	1
Laparotomy (exploratory), enlarged spleen, hæmorrhagic diathesis	1
Laparotomy, intussusception	1
Laparotomy, sarcoma of broad ligament	1
Laparotomy, abdominal sinus	1
Laparotomy for ligation of uterine arteries	1
Laparotomy, tubercular peritonitis	1
Laparotomy, obstruction of intestines	1

Deaths from Surgical Operations During the Year 1891—(Continued).

Laparotomy, ovarian cyst	1
Laparotomy, invaginated intestines	1
Ovariotomy	4
Ovariotomy, shock, pulmonary thrombosis	1
Ovariotomy, septic peritonitis	2
Ovariotomy, septicæmia	1
Ovariotomy, tumor	1
Oöphorectomy	1
Oöphorectomy, tubal disease	1
Oöphorectomy, peritonitis	1
Oöphorectomy, septic peritonitis	1
Operation, pneumonia	1
Operation for abscess of neck	1
Operation for fibro-cystic tumor of uterus	1
Operation for intussusception	2
Operation for abdominal tumor	1
Operation for salpingitis	3
Operation for removal of part of large thyroid	1
Operation for rupture	1
Operation to relieve intestinal obstruction	1
Operation for removal of uterine fibroma	1
Operation for fistula, ulcer of perineum	1
Operation for typhlitis	1
Operation for pyo-salpinx	1
Operation for artificial anus, intestinal obstruction	1
Operation for removal of cystic tumor of head	1
Operation for fibroids of uterus	1
Operation for intestinal obstruction, pyo-salpinx	1
Operation for gangrene of leg	1
Operation on nose, meningitis	1
Operation for relief of abscesses, septicæmia	1
Operation for gall-stones	1
Operation for hernia	1
Operation for enlarged glands of groin	1
Operation (Alexander's) nephritis	1
Operation for fæcal fistula	1
Operation for stricture of intestines	1
Operation for stricture of urethra, shock, hæmorrhage	1
Operation for cancer of breast, shock	1
Perineal lithotomy	1
Perineal section for enlarged prostate	1
Removal of fibroid cyst of uterus	1
Removal of ovarian tumor	1
Removal of ovarian cyst	1
Removal of tumor	1
Trephining, otitis media	1
Tracheotomy and thyrotomy for laryngeal tumor	1
Urethrotomy, stricture	1
Vaginal hysterectomy, uræmia	1
Total	133

Former Condition

	January.	February.	March.	April.	May.
Bachelors and spinsters	1,041	1,038	942	1,171	1,005
Bachelors and widows	70	71	62	98	77
Widowers and spinsters	83	101	66	126	92
Widowers and widows	51	47	50	57	40
Unknown (one or both)	....	....	....	9	1
Divorced (one or both)	13	10	11	9	6
Total	1,258	1,267	1,131	1,470	1,221

Ages of Bridegrooms and Brides during

Ages of Bridegrooms—Years.	Ages of Brides—Years.											
	14	15	16	17	18	19	20	21 to 25	25 to 30	30 to 35	35 to 40	40 to 45
18	..	..	4	4	11	2	..	2	2	..	..	..
19	..	..	5	16	22	26	12	14	..	..	..	..
20	..	..	17	18	60	92	72	65	13	2	..	..
21 to 25	1	1	84	158	504	756	941	2,016	352	46	7	2
25 to 30	..	1	38	114	271	364	545	2,285	1,382	236	70	9
30 to 35	..	..	13	30	68	91	147	750	823	369	114	34
35 to 40	..	..	..	7	20	25	27	256	356	267	135	53
40 to 45	..	..	..	3	4	4	20	80	147	140	120	87
45 to 50	..	..	..	..	1	1	3	22	67	82	84	60
50 to 55	..	..	..	..	1	..	2	8	26	41	31	47
55 to 60	..	..	..	..	2	..	..	2	8	11	10	24
60 to 65	..	..	..	..	..	..	..	4	5	4	14	9
65 to 70	..	..	..	..	..	..	..	1	3	2	1	3
70 to 75	..	..	..	..	..	..	..	..	..	..	2	..
75 to 80	..	..	..	..	..	..	..	..	..	1	1	..
80 to 85	..	..	..	..	..	..	..	..	..	..	..	..
Unspecified	..	..	..	..	..	..	1	1	1	..	..	..
Total Brides	1	2	161	350	964	1,361	1,770	5,507	3,185	1,201	589	328

of Persons Married.

June.	July.	August.	September.	October.	November.	December.	Total.
1,137	1,070	810	1,102	1,126	1,154	1,297	12,893
73	68	57	57	99	70	88	890
[108	89	72	87	113	115	103	1,155
63	80	49	66	55	57	69	684
3	11	....	1	5	1	2	33
9	3	7	4	10	16	11	109
1,393	1,321	995	1,317	1,408	1,413	1,570	15,764

Year ending December 31, 1891.

Ages of Brides—Years.									
45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	Unspecified.	Total Bride-grooms.
..	..	..	..	..	..	..	..	..	25
..	..	..	..	..	..	..	..	..	95
..	..	..	..	..	..	..	..	..	340
..	..	..	..	..	..	..	..	9	4,877
3	1	..	..	..	..	..	..	7	5,326
9	3	..	..	..	..	..	1	5	2,457
17	6	..	..	..	..	..	..	3	1,172
30	8	2	..	..	..	..	..	..	645
52	6	1	1	..	..	..	..	..	380
31	18	3	1	..	..	..	..	1	210
31	9	9	2	..	..	..	..	..	108
6	8	5	4	2	..	1	..	..	62
6	3	3	5	2	1	..	..	..	30
2	1	3	3	2	..	..	..	..	13
1	..	1	..	1	..	..	..	..	5
..	1	..	1	..	..	1	..	..	3
..	..	..	..	..	..	..	..	13	16
188	64	27	17	7	1	2	1	38	15,764

Table of Births Reported by Months, for the Year 1891, *showing Color, Nativity of*

Months.	Total.	White.		Colored.	
		Male.	Female.	Male.	Female.
January	3,770	1,946	1,779	27	18
February	3,324	1,641	1,644	16	23
March	3,582	1,804	1,736	23	19
April	3,328	1,682	1,604	15	27
May	3,053	1,547	1,483	10	13
June	3,332	1,698	1,594	22	18
July	4,895	2,504	2,318	33	40
August	4,459	2,214	2,192	24	29
September	4,354	2,210	2,087	27	30
October	4,431	2,250	2,125	25	31
November	4,146	2,084	2,012	25	25
December	4,230	2,139	2,038	27	26
Total	46,904	23,719	22,612	274	299

Parents, Number Reported by Physicians and Midwives, Illegitimate and Twin Births.

Nativity of Parents.								Births Reported by		Births Apparently Illegitimate.	Pairs of Twins Reported.
Native.		Foreign.		Mixed.		Unknown.					
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Physicians.	Midwives.		
494	453	1,151	1,016	287	298	41	30	1,825	1,945	47	27
448	405	913	971	253	250	43	41	1,352	1,572	79	24
462	450	1,015	990	295	269	55	46	1,946	1,636	100	29
423	435	955	901	279	253	40	42	1,721	1,607	104	26
431	393	853	827	223	236	50	40	1,559	1,494	79	34
452	414	937	930	278	224	53	44	1,792	1,540	103	*25
657	626	1,404	1,319	424	368	52	51	2,707	2,188	114	38
566	561	1,279	1,246	355	361	38	53	2,396	2,063	107	34
579	500	1,304	1,247	314	329	40	41	2,258	2,096	90	26
543	540	1,326	1,259	363	313	43	44	2,390	2,041	96	28
516	505	1,252	1,197	299	305	42	29	2,121	2,025	92	23
507	498	1,309	1,236	319	287	31	43	2,067	2,163	93	47
6,078	5,774	13,698	13,139	3,689	3,494	528	504	24,134	22,770	1,104	361

* Also 1 trio of triplets.

Deaths and Death-rate by Sex, Year 1891.

Months.	Number of Deaths.			Death-rate per 1,000 of Estimated Population.		
	Male.	Female.	Total.	Male.	Female.	Total.
January	1,741	1,593	3,334	12.43	11.37	23.80
February	1,592	1,434	3,026	11.37	10.24	21.60
March	2,056	1,798	3,854	14.68	12.84	27.52
April	2,584	2,464	5,048	18.45	17.59	36.04
May	1,928	1,764	3,692	13.76	12.59	26.36
June	1,894	1,668	3,562	13.52	11.92	25.43
July	2,288	1,973	4,261	16.33	14.09	30.42
August	1,988	1,660	3,648	24.19	11.85	26.04
September	1,723	1,508	3,231	12.30	10.77	23.07
October	1,709	1,540	3,249	12.20	10.99	23.19
November	1,647	1,373	3,020	11.76	9.80	21.56
December	1,954	1,780	3,734	13.95	12.71	26.66
Total	23,104	20,555	43,659	13.75	12.23	25.98

Births and Birth-rate by Sex, Year 1891.

Months.	Number of Births Registered	Birth-rate per 1,000.	Males.	Females.	Per-centage of Males to Total.	Percentage of Females to Total.
January	3,770	26.92	1,973	1,797	52.33	47.67
February	3,324	23.73	1,657	1,667	49.85	50.15
March	3,582	25.57	1,827	1,755	51.01	48.99
April	3,328	23.76	1,697	1,631	50.99	49.01
May	3,053	21.80	1,557	1,496	51.00	49.00
June	3,332	23.79	1,720	1,612	51.62	48.38
July	4,895	34.95	2,537	2,358	51.83	48.17
August	4,459	31.83	2,238	2,221	50.19	49.81
September	4,354	31.08	2,237	2,117	51.35	48.65
October	4,431	31.63	2,275	2,156	51.34	48.66
November	4,146	29.60	2,109	2,037	50.87	49.13
December	4,230	30.20	2,166	2,064	51.20	48.80
Total	46,904	27.19	23,993	22,911	51.15	48.85

Table showing the Increase or Decrease in 1891 *from Certain Causes Comprising about* 81 *per cent. of all Deaths as Compared with the Average Annual Number of Deaths from the Same Causes for the previous Ten Years, Increased to Correspond with the Increase of Population.*

Causes of Death.	Average for 10 Years, 1881–1890, Inclusive.	Same Increased for Increase of Population.	Deaths in 1891.	Increase in 1891.	Decrease in 1891.
Small-pox	96.2	113	2	....	111
Measles	678.2	796	663	....	133
Scarlatina	991.2	1,164	1,220	56	....
Typhus fever	30.0	35	1	....	34
Whooping-cough	472.6	555	352	....	203
Diphtheria	1,595.4	1,874	1,361	....	513
Typhoid fever, including typho-malarial fever	458.3	538	384	....	154
Diarrhœal diseases	3,656.2	4,296	3,587	....	709
Cancer	788.4	926	902	....	24
Phthisis and other tuberculous diseases	6,015.3	7,065	6,076	....	989
Premature birth	683.6	803	799	....	4
Diseases of the nervous system*	3,225.3	3,789	3,342	....	447
Diseases of the circulatory system	1,887.6	2,217	2,454	237	....
Diseases of the respiratory system, including croup	6,695.5	7,862	9,283	1,421	....
Diseases of the urinary system	2,316.1	2,720	2,696	....	24
Child-birth and puerperal fever	402.5	473	420	....	53
Accident	1,153.7	1,355	1,597	242	....
Homicide	64.0	75	56	....	19
Suicide	215.0	253	306	53	....
All other causes	6,326.5	7,431	8,158	727	....
Total	37,751.6	44,340	43,659	2,736	3,417
Balance	.....	.....	.....	....	681

* Sunstroke included from 1881 to 1887, excluded from 1888 to 1891, inclusive.

The table thus shows a saving of 681 lives of persons in 1891, who would have died during the year if the mortality had been equal to the average annual mortality for the previous ten years.

Cases of Sickness Reported Weekly from Diphtheria.

Wards.	Diseases.	WEEK ENDING—								
		January—					February—			
		3	10	17	24	31	7	14	21	28
First	Diphtheria	..	1	..	..	1	2	1	1	..
	Scarlatina	2	2	2	1	1	3	2	3	1
	Measles	..	..	3	3	..	1	13	..	10
Second	Diphtheria	..	..	..	..	1	..	..	..	..
	Scarlatina	..	1	..	..	..	..	..	..	..
	Measles	..	..	..	..	..	..	..	..	..
Third	Diphtheria	..	..	..	..	..	..	..	..	..
	Scarlatina	..	..	..	..	..	..	..	..	..
	Measles	..	..	..	1	..	..	..	..	..
Fourth	Diphtheria	..	1	..	2	..	..	2	1	..
	Scarlatina	1	1	..	2	1	..	2	2	..
	Measles	1	2	10	3	9	1	1	..	..
Fifth	Diphtheria	..	1	..	2	..	..	..	2	2
	Scarlatina	1	2	4	1	..	4	..	3	..
	Measles	1	..	5	2	4	..	..	1	..
Sixth	Diphtheria	..	1	..	1	..	1	2	1	..
	Scarlatina	..	..	3	2	1	..	1	4	2
	Measles	2	2	1	1	..	3	1	3	..
Seventh	Diphtheria	6	6	3	4	6	2	2	6	5
	Scarlatina	2	3	5	9	11	6	10	11	11
	Measles	7	9	28	20	15	15	5	16	3
Eighth	Diphtheria	..	1	..	1	2	6	2	1	4
	Scarlatina	1	1	3	7	3	..	6	2	..
	Measles	3	4	5	2	5	4	8	6	5
Ninth	Diphtheria	2	3	1	2	..	1	5	..	1
	Scarlatina	1	3	4	2	10	6	4	4	6
	Measles	8	6	13	14	11	31	25	37	30
Tenth	Diphtheria	4	6	5	3	7	8	6	6	11
	Scarlatina	7	18	16	3	11	16	21	26	9
	Measles	11	11	18	10	10	9	6	9	10
Eleventh	Diphtheria	6	3	6	5	7	7	7	13	5
	Scarlatina	14	8	9	9	7	17	13	10	11
	Measles	4	16	11	6	16	19	14	11	10
Twelfth	Diphtheria	30	23	13	19	19	16	16	22	21
	Scarlatina	24	35	24	24	29	27	23	19	26
	Measles	70	103	86	106	125	109	107	57	80

Scarlatina and Measles, by Wards, for the Year 1891.

WEEK ENDING—																	
MARCH—				APRIL—				MAY—					JUNE—				
7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	
1	..	..	..	..	1	4	2	3	2	..	..	2	1	1	..	..	
..	5	1	3	2	3	1	1	2	3	2	2	..	1	1	1	1	
2	..	..	4	7	5	9	10	8	4	9	9	11	8	23	11	39	
..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	
1	1	..	1	..	..	..	..	..	..	..	..	..	1	1	1	..	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2	3	
1	2	..	..	..	1	..	..	..	..	2	..	2	..	1	2	1	
1	1	..	2	..	2	1	1	1	1	2	6	3	1	6	1	..	
..	3	2	1	1	1	..	..	2	5	..	..	1	3	2	3	..	
..	..	..	..	..	..	1	..	1	..	1	..	2	..	..	2	1	
1	..	2	..	3	2	2	1	1	1	..	1	..	..	..	..	..	
1	..	..	2	3	1	..	2	2	..	2	1	..	2	..	..	..	
..	2	1	2	1	1	1	..	..	..	4	3	2	..	2	..	..	
1	1	2	3	1	1	2	1	7	6	4	4	3	4	3	1	2	
2	2	3	2	4	7	2	1	3	3	4	4	6	1	4	10	7	
4	3	3	4	2	2	5	4	6	1	3	2	4	4	5	5	3	
6	6	5	11	20	7	8	6	9	12	15	13	12	14	10	7	15	
13	15	12	11	19	11	10	8	19	12	15	17	13	20	20	28	13	
3	3	3	2	1	..	1	2	1	1	..	1	2	3	5	1	1	
1	1	4	5	3	4	2	3	7	6	10	4	3	6	9	7	2	
5	3	6	3	3	4	1	14	11	6	7	3	7	10	16	4	8	
4	1	2	5	3	3	1	2	..	1	1	..	2	1	1	1	2	
4	5	5	6	13	7	3	9	8	5	1	3	3	6	5	2	8	
25	24	32	33	39	24	25	31	16	14	18	11	4	12	8	5	10	
6	5	1	3	4	4	4	1	4	9	3	5	3	8	4	1	2	
12	7	8	11	14	7	6	6	7	8	16	12	12	7	14	8	5	
7	8	12	6	8	15	5	11	19	15	10	10	19	23	23	20	30	
8	5	4	1	2	9	6	1	2	10	2	6	5	5	5	5	4	
9	17	12	13	10	16	14	19	10	13	18	14	20	17	14	12	10	
6	11	13	12	9	12	14	8	7	6	13	12	8	16	18	6	13	
10	7	16	19	21	13	26	15	10	13	20	12	14	17	5	12	9	
24	30	32	26	40	46	40	29	17	18	26	34	28	21	19	23	21	
91	86	105	80	78	49	58	57	57	42	59	43	54	57	43	43	20	

Cases of Sickness Reported Weekly from Diphtheria, Scarlatina

Wards.	Diseases.	WEEK ENDING—								
		July—				August—				
		4	11	18	25	1	8	15	22	29
First	Diphtheria	1	..	..	..	..	1	..	..	1
	Scarlatina	..	1	1	4	..	..	..	..	..
	Measles	19	25	17	9	8	2	1	6	1
Second	Diphtheria	..	..	..	..	..	..	..	..	..
	Scarlatina	..	..	..	..	..	..	..	..	..
	Measles	..	..	..	..	..	..	..	..	..
Third	Diphtheria	..	..	1	..	..	..	..	..	..
	Scarlatina	..	..	..	..	..	..	..	..	..
	Measles	1	1	1	2	1	..	..	..	..
Fourth	Diphtheria	1	4	4	..	..	1	3	..	..
	Scarlatina	3	2	6	..	2	5	1	4	..
	Measles	..	1	3	4	1	10	2	5	1
Fifth	Diphtheria	..	..	1	..	5	2	..	1	..
	Scarlatina	1	1	..	..	1	..	..	..	..
	Measles	..	2	3	1	1	..	1	..	1
Sixth	Diphtheria	..	..	3	..	4	1	2	2	1
	Scarlatina	3	1	2	..	..	1	3	1	1
	Measles	2	12	10	7	3	3	..	1	..
Seventh	Diphtheria	2	1	1	3	6	2	1	6	5
	Scarlatina	8	20	8	11	15	10	11	3	3
	Measles	24	18	16	20	14	10	15	6	1
Eighth	Diphtheria	2	3	..	..	3	2	1	1	1
	Scarlatina	2	5	6	8	..	..	2	1	1
	Measles	7	11	5	10	7	2	4	1	..
Ninth	Diphtheria	1	1	1	1	..	..	1	2	1
	Scarlatina	2	5	2	3	3	1	..	1	1
	Measles	9	13	6	8	7	2	4	2	3
Tenth	Diphtheria	1	7	8	5	6	..	1	3	4
	Scarlatina	4	12	9	3	8	3	7	6	3
	Measles	27	39	16	13	14	13	11	6	4
Eleventh	Diphtheria	1	9	3	1	4	2	1	4	1
	Scarlatina	12	12	7	10	6	5	4	7	7
	Measles	5	17	5	11	5	6	5	4	3
Twelfth	Diphtheria	10	22	11	8	11	23	8	13	14
	Scarlatina	9	16	12	5	12	8	10	4	9
	Measles	15	25	18	16	6	9	4	4	4

Measles, by Wards, for the Year 1891—(Continued).

WEEK ENDING																			
SEPTEMBER—				OCTOBER—					NOVEMBER—				DECEMBER—				JAN.	TOTAL.
12	19	26	3	10	17	24	31	7	14	21	28	5	12	19	26	2 1892.	
..	1	..	..	..	1	..	..	1	1	..	1	4	6	3	..	..	45
..	1	3	1	4	1	..	..	..	3	3	..	1	1	3	..	1	72
2	3	6	2	3	2	2	2	13	9	1	7	..	7	5	6	3	361
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	1	10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	14
1	1	2	..	..	..	1	2	1	1	..	3	..	2	3	1	3	52
..	..	3	1	..	..	..	1	1	..	1	1	..	..	..	..	..	68
1	1	2	1	..	..	..	1	2	..	..	..	..	..	..	..	..	85
..	..	..	..	..	..	1	..	1	..	..	..	..	3	1	..	5	..	35
..	..	1	..	..	..	..	2	1	1	1	..	..	2	..	2	1	1	43
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
..	1	3	..	..	2	..	2	2	..	..	..	..	2	2	2	3	4	62
..	2	3	2	1	..	..	..	..	1	2	5	3	1	4	6	4	1	106
..	..	1	3	..	..	..	..	1	..	..	..	..	..	1	..	..	..	120
1	3	4	1	2	5	3	1	5	6	8	2	10	2	3	3	2	11	194
5	3	5	6	4	5	4	4	4	3	5	4	14	5	8	9	5	10	436
5	2	1	3	..	1	4	6	..	5	1	..	2	2	2	3	3	..	531
1	..	..	2	..	..	..	2	..	2	1	..	..	1	..	3	1	4	81
4	1	2	1	..	..	..	1	2	..	1	3	1	1	1	..	6	5	153
..	2	1	..	1	..	1	..	..	..	..	..	..	..	..	1	1	..	204
2	1	1	..	2	3	1	2	3	..	2	2	2	2	2	1	4	3	84
..	5	2	1	1	..	2	1	1	4	2	3	3	4	10	3	11	6	209
1	..	..	..	2	..	1	..	..	..	..	1	1	..	2	..	..	..	563
6	8	4	3	4	6	5	5	..	4	6	4	1	6	5	5	7	2	235
8	5	4	..	..	2	7	3	2	5	2	6	16	12	9	25	7	12	462
7	1	5	1	5	5	12	3	4	2	6	4	5	10	18	11	13	9	588
3	2	4	6	5	3	1	3	6	1	6	6	4	3	2	..	9	4	227
3	6	4	8	5	2	9	5	6	7	2	1	4	..	12	8	8	8	490
11	2	1	2	1	1	3	..	1	2	1	1	..	1	2	3	6	8	397
5	6	10	11	15	13	21	22	12	25	5	26	21	23	18	28	24	20	823
3	5	5	6	2	10	5	8	12	11	16	19	31	21	18	32	34	38	1,042
2	3	5	21	17	13	10	11	3	6	7	3	3	6	9	9	15	9	2,048

* Exclusive of week ending January 3, 1891.

Cases of Sickness Reported Weekly from Diphtheria, Scarlatina

Wards.	Diseases.	WEEK ENDING—								
		January—					February—			
		3	10	17	24	31	7	14	21	28
Thirteenth	Diphtheria	3	3	4	7	4	3	1	3	4
	Scarlatina	12	5	4	10	13	12	9	12	6
	Measles	4	4	12	12	8	13	13	2	7
Fourteenth	Diphtheria	..	3	3	2	3	2	2	6	2
	Scarlatina	..	1	..	1	3	1	7	2	2
	Measles	..	4	2	1	3	4	4	4	2
Fifteenth	Diphtheria	1	2	1	..	..	2	1	..	1
	Scarlatina	1	1	..	1	2	1	1	1	1
	Measles	1	..	2	2	1	4	16	..	14
Sixteenth	Diphtheria	5	2	2	1	6	4	3	2	..
	Scarlatina	1	1	2	2	9	..	2	1	3
	Measles	6	..	2	4	7	2	8	9	2
Seventeenth	Diphtheria	4	..	11	8	7	3	5	7	7
	Scarlatina	5	7	9	17	12	10	17	18	13
	Measles	13	11	15	20	20	20	13	21	16
Eighteenth	Diphtheria	6	5	3	4	1	6	3	5	3
	Scarlatina	2	9	1	3	3	1	3	4	9
	Measles	10	15	12	10	10	14	7	11	3
Nineteenth	Diphtheria	14	18	15	20	21	26	16	13	20
	Scarlatina	12	21	16	20	35	16	18	24	13
	Measles	28	50	32	80	59	57	69	75	73
Twentieth	Diphtheria	6	5	8	4	2	6	8	3	4
	Scarlatina	4	7	3	2	4	7	10	5	6
	Measles	19	20	35	21	22	23	26	6	8
Twenty-first	Diphtheria	5	6	4	1	1	3	5	2	5
	Scarlatina	4	6	2	4	5	4	4	6	8
	Measles	32	33	30	32	15	9	13	20	20
Twenty-second	Diphtheria	7	3	8	8	9	13	12	11	13
	Scarlatina	9	9	13	11	4	13	12	10	7
	Measles	68	95	80	78	70	67	72	28	58
Twenty-third	Diphtheria	5	2	3	7	5	9	4	10	11
	Scarlatina	9	10	9	12	7	7	12	15	11
	Measles	9	3	10	22	21	42	40	51	32
Twenty-fourth	Diphtheria	1	..	..	2	5	1	3	..	..
	Scarlatina	1	3	15	3	3	2	1	3	2
	Measles	1	2	1	3	2	..	1	..	1

and Measles, by Wards, for the Year 1891—(Continued).

WEEK ENDING—																	
MARCH—				APRIL—				MAY—					JUNE—				
7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	
2	3	..	4	6	6	5	2	3	4	5	6	6	6	2	5	2	
11	9	10	11	12	12	12	9	19	18	17	13	28	14	14	17	10	
12	16	7	14	9	5	7	17	11	20	11	15	4	25	27	24	12	
2	5	2	3	1	3	4	1	4	2	2	3	3	2	3	1	3	
3	3	4	2	3	3	2	4	3	2	7	3	4	9	1	3	1	
10	7	4	3	4	3	11	2	7	6	12	11	15	10	18	12	10	
3	..	..	..	3	1	1	..	2	..	1	..	1	1	1	2	..	
2	2	1	1	..	1	1	1	2	2	4	1	4	4	5	3	..	
11	23	9	4	8	2	11	6	7	7	6	6	10	3	3	6	3	
2	1	5	2	1	2	1	1	2	2	3	1	3	3	3	4	1	
2	1	8	9	2	8	2	4	8	5	4	5	1	2	2	..	1	
3	4	8	10	9	13	13	31	29	21	9	18	13	13	5	1	8	
7	11	12	6	5	3	4	13	4	8	11	8	6	8	8	7	5	
13	16	6	20	20	16	15	9	12	30	14	18	18	24	14	8	11	
18	13	6	14	19	16	22	24	24	35	24	29	14	15	18	6	13	
3	..	5	2	6	3	2	5	1	3	5	1	1	5	3	3	1	
6	5	2	5	13	6	9	7	4	4	10	10	9	8	5	3	2	
11	9	11	8	6	17	8	24	20	14	18	20	17	16	12	11	3	
18	20	19	11	26	11	12	20	10	13	15	12	15	12	9	7	10	
30	24	23	26	35	47	50	40	33	29	39	41	35	31	21	19	16	
86	99	88	80	97	101	71	90	99	58	120	63	60	74	44	19	16	
8	6	6	5	5	3	8	2	4	8	2	2	4	7	4	1	1	
7	5	4	4	3	10	7	5	12	8	16	15	11	12	6	17	8	
12	15	21	18	15	18	26	18	18	17	19	17	19	17	19	20	8	
2	1	2	2	2	1	10	1	6	1	1	1	2	4	2	4	..	
3	4	9	6	5	5	6	9	4	7	11	10	8	5	6	6	1	
32	12	25	7	13	4	3	9	14	13	7	23	12	5	3	4	6	
6	4	6	8	8	7	5	8	2	10	6	7	8	10	11	10	9	
15	6	10	11	16	17	12	7	12	15	13	15	11	10	16	16	10	
48	53	27	30	25	27	18	18	10	9	15	13	22	14	22	9	11	
14	12	4	2	1	8	7	1	2	6	3	1	7	3	4	..	3	
5	7	10	1	9	6	5	6	3	5	6	5	6	5	6	8	2	
26	21	14	12	9	4	10	6	5	8	9	5	8	3	6	4	3	
..	1	1	..	3	..	..	1	..	1	..	..	1	..	..	..	1	
2	..	1	1	1	2	..	4	3	1	6	..	1	3	2	2	5	
..	1	..	..	1	3	3	8	2	10	5	16	12	22	9	5	8	

Cases of Sickness Reported Weekly from Diphtheria, Scarlatina

Wards.	Diseases.	WEEK ENDING—								
		July—				August—				
		4	11	18	25	1	8	15	22	29
Thirteenth	Diphtheria	4	4	1	3	4	3	..	2	2
	Scarlatina	8	13	5	4	8	7	2	6	1
	Measles	14	16	32	20	13	10	8	13	6
Fourteenth	Diphtheria	..	3	1	1	1	..	2	3	..
	Scarlatina	2	1	5	2	4	2	2	1	1
	Measles	11	8	13	8	10	5	3	3	1
Fifteenth	Diphtheria	4	1	..	..	2	..	..	..	..
	Scarlatina	3	4	..	1	..	..	..	..	1
	Measles	1	2	3	1	1	3	2	..	..
Sixteenth	Diphtheria	3	1	..	..	2	1	..	1	2
	Scarlatina	1	..	..	..	..	3	1	1	3
	Measles	5	5	8	6	9	3	7	5	..
Seventeenth	Diphtheria	4	7	13	8	6	12	4	3	2
	Scarlatina	3	9	15	7	5	9	5	3	4
	Measles	10	16	10	5	10	1	2	1	8
Eighteenth	Diphtheria	..	1	2	2	2	1	..	2	2
	Scarlatina	2	5	2	3	1	..	..	1	..
	Measles	3	2	5	3	1	3	1	2	1
Nineteenth	Diphtheria	9	17	8	7	11	9	7	7	9
	Scarlatina	20	19	13	27	16	14	9	6	6
	Measles	13	7	13	1	5	3	8	2	1
Twentieth	Diphtheria	7	3	5	8	2	..	4	5	4
	Scarlatina	8	7	9	14	8	7	7	3	9
	Measles	6	13	11	9	3	2	1	3	3
Twenty-first	Diphtheria	1	3	2	2	1	..	1	..	1
	Scarlatina	2	..	2	5	4	2	..	..	..
	Measles	3	5	5	3	3	3	..	..	1
Twenty-second	Diphtheria	4	6	10	3	5	5	7	4	7
	Scarlatina	6	16	15	7	9	5	7	6	5
	Measles	8	10	12	8	6	..	6	3	2
Twenty-third	Diphtheria	1	6	4	5	7	4	10	2	5
	Scarlatina	1	2	7	3	1	4	2	1	3
	Measles	2	1	2	..	2	..	..	..	..
Twenty-fourth	Diphtheria	..	..	1	1	..	..	..	..	4
	Scarlatina	2	1	1	..	1	2	..	..	..
	Measles	3	1	4	..	3	1	..	..	..

and Measles, by Wards, for the Year 1891—(Continued).

WEEK ENDING—																		
SEPTEMBER—				OCTOBER—					NOVEMBER—				DECEMBER—				JAN.	* TOTAL.
5	12	19	26	3	10	17	24	31	7	14	21	28	5	12	19	26	2 1892.	
3	1	2	2	2	3	1	1	4	4	2	3	3	1	3	4	3	5	166
5	1	2	1	..	2	4	1	1	2	2	4	1	10	4	8	9	6	424
1	2	2	2	1	1	3	4	2	2	3	3	1	5	5	3	4	9	492
2	3	1	..	2	2	1	3	2	2	1	..	1	3	1	2	1	2	107
2	..	1	..	..	1	5	1	3	6	5	3	2	1	4	2	1	7	138
5	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	3	242
2	1	..	..	..	..	..	..	..	1	..	..	1	4	4	..	..	3	46
1	1	..	..	..	..	1	..	..	1	1	2	1	2	1	..	3	..	65
..	..	1	..	..	..	..	1	1	1	1	..	..	..	..	..	..	..	182
2	6	4	2	1	3	2	..	2	2	5	4	5	4	6	7	5	5	132
1	1	5	2	4	1	..	2	..	3	4	1	4	7	4	4	6	11	153
5	2	4	..	3	..	..	..	..	1	..	1	..	..	..	..	..	5	311
2	6	5	5	5	2	8	3	6	3	3	8	13	8	5	10	4	5	334
4	2	3	6	7	6	3	5	10	7	13	5	12	4	7	18	15	11	565
4	1	1	..	1	1	1	3	..	3	..	2	11	9	10	14	11	14	595
..	2	1	..	1	3	3	3	1	3	4	5	3	8	7	6	6	5	152
2	1	1	1	2	3	6	3	4	2	4	9	6	5	7	6	8	7	229
4	2	2	2	..	..	..	1	..	..	1	..	2	1	..	..	..	5	348
10	13	6	10	10	9	5	8	14	23	22	24	8	8	18	21	30	9	721
15	11	8	6	12	6	9	17	20	13	24	28	25	32	32	31	43	62	1,226
1	1	6	2	2	1	2	3	11	1	8	19	19	38	10	47	16	31	2,031
3	13	10	9	15	9	12	16	18	16	16	8	12	17	8	18	21	13	388
10	2	2	10	3	7	4	7	3	2	5	7	3	3	8	6	7	8	363
..	1	1	..	1	..	..	2	..	4	..	..	2	..	..	..	1	..	521
1	1	1	7	2	4	6	2	2	4	6	4	2	..	7	7	4	5	145
..	1	2	1	1	4	3	6	3	6	4	6	2	6	12	5	5	4	230
1	..	..	1	..	1	1	2	..	..	..	..	..	..	1	1	1	1	397
7	7	8	3	4	7	4	6	13	11	5	5	11	10	17	13	13	17	414
3	2	6	7	5	8	3	7	4	2	13	8	13	10	12	15	17	16	518
1	2	1	2	1	..	1	..	..	1	7	9	16	11	2	11	16	17	1,072
1	3	2	4	3	2	3	2	5	2	4	4	10	3	2	10	8	4	245
1	1	2	2	..	..	1	2	1	3	7	8	3	4	2	5	5	10	257
1	..	..	1	1	..	..	..	..	..	..	..	..	1	..	4	..	3	392
..	2	..	3	2	2	..	1	1	1	1	1	1	2	..	3	1	..	47
..	..	..	..	..	..	1	..	1	..	1	1	1	2	1	3	1	..	85
..	..	..	..	..	..	..	1	..	..	1	..	..	1	1	..	..	..	131

* Exclusive of week ending January 3, 1891.

The following tables have been compiled, partly from the published, but largely from the manuscript records of the Health Department. Any imperfections, or inconsistencies with previous publications of the Department are explained in foot-notes.

The tables of deaths reported by weeks it has been thought desirable to print, because the weekly fluctuations show better than the monthly the effects of unfavorable meteorological conditions and of those dimly understood causes which induce the rise and decline of epidemics of the eruptive fevers. For the years 1871, 1872, and a part of 1873 and 1877, the actual weekly deaths

Total Deaths Reported

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First	507	498	583	490	632	547	500	503
Second	494	475	508	508	677	508	459	563
Third	534	477	558	509	664	600	426	489
Fourth	478	504	528	451	576	531	441	477
Fifth	488	574	533	479	600	566	452	513
Sixth	500	584	573	540	594	610	423	471
Seventh	504	561	552	553	627	567	410	533
Eighth	491	621	551	487	605	599	447	524
Ninth	515	594	519	487	650	651	557	522
Tenth	524	641	528	522	619	679	526	571
Eleventh	499	591	551	557	530	619	495	483
Twelfth	537	655	569	524	605	588	498	567
Thirteenth	566	686	522	509	565	592	442	530
Fourteenth	508	704	541	580	572	578	482	509
Fifteenth	544	691	518	584	572	550	502	509
Sixteenth	538	677	538	479	580	522	454	563
Seventeenth	461	696	502	550	556	554	480	503
Eighteenth	508	667	500	488	578	556	472	467
Nineteenth	514	764	509	561	543	548	440	455
Twentieth	474	645	561	452	543	483	480	470
Twenty-first	499	645	538	483	524	459	488	439
Twenty-second	551	588	496	489	476	468	430	454
Twenty-third	469	560	486	460	497	460	430	434
Twenty-fourth	449	632	455	399	489	459	414	462
Twenty-fifth	486	641	474	492	522	443	422	469
Twenty-sixth	604	769	475	491	616	636	569	554

PREVIOUS YEARS.

are given in the table of diarrhœal diseases in children, the number of reported deaths not having been preserved. Elsewhere only the reported deaths are given in these weekly tables, so that they are uniform and suitable for comparison with current weekly reports. When the disturbing influence of the duration of the disease is taken into account, it will be seen that there is little, if any, difference between the actual number of deaths weekly and the number reported (or registered) as indicators of the varying sanitary condition of a community.

by Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
555	548	778	758	618	576	677	710	809	723	785	1,202	744
569	457	719	761	683	597	643	652	814	763	739	1,424	786
632	555	667	817	622	560	650	716	789	749	779	1,151	748
639	489	707	802	636	592	677	652	735	802	708	872	737
624	521	718	797	589	584	775	612	793	831	783	782	736
602	532	709	839	618	627	724	736	751	740	818	765	755
554	519	683	892	623	694	761	674	742	796	786	742	751
551	541	694	766	678	592	823	697	697	836	870	757	797
600	541	717	814	719	628	776	747	773	803	857	730	735
555	529	750	800	669	624	777	776	731	799	877	696	813
604	511	674	751	739	633	700	758	734	800	863	769	840
623	543	713	763	734	672	782	793	697	861	812	772	895
537	519	697	846	727	648	791	726	762	768	860	783	1,100
534	560	722	762	746	611	740	701	771	772	862	758	1,216
471	628	789	820	721	625	696	698	825	787	861	756	1,347
512	565	780	798	676	618	759	696	760	734	868	721	1,208
579	562	814	787	630	636	638	657	729	782	830	802	961
543	603	770	803	703	689	705	659	760	829	731	741	910
509	585	822	777	668	595	657	623	748	856	782	737	873
499	542	693	760	728	616	654	626	698	768	744	705	777
444	683	639	688	643	648	658	635	732	703	684	751	798
445	501	660	719	634	603	621	577	627	701	629	656	772
490	479	633	659	658	630	593	597	609	720	688	821	743
441	707	637	608	551	621	662	623	680	685	718	695	952
473	1,038	699	661	539	634	678	637	788	801	760	773	803
562	1,297	926	780	716	771	809	752	1,024	1,038	864	875	922

Total Deaths Reported, by

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Twenty-seventh	710	1,569	630	561	743	858	673	665
Twenty-eighth	857	1,056	690	790	890	1,298	831	741
Twenty-ninth	654	918	895	873	955	997	754	718
Thirtieth	581	791	860	751	815	744	717	732
Thirty-first	628	720	889	720	719	609	650	586
Thirty-second	630	645	739	721	691	690	625	560
Thirty-third	569	751	688	680	674	612	553	569
Thirty-fourth	537	788	615	618	592	572	596	519
Thirty-fifth	554	638	613	604	674	610	644	553
Thirty-sixth	555	571	635	583	628	506	539	530
Thirty-seventh	520	627	578	515	634	494	493	458
Thirty-eighth	504	533	598	529	568	487	507	474
Thirty-ninth	552	503	524	595	586	458	522	501
Fortieth	465	479	507	488	529	450	513	516
Forty-first	486	487	452	554	487	436	465	516
Forty-second	411	483	543	526	457	467	534	505
Forty-third	478	440	514	519	482	424	429	448
Forty-fourth	404	478	454	535	455	432	447	450
Forty-fifth	413	513	465	543	486	413	459	444
Forty-sixth	420	444	525	521	451	415	466	518
Forty-seventh	437	439	519	521	492	413	424	461
Forty-eighth	427	473	492	521	484	427	409	474
Forty-ninth	436	507	525	478	539	483	418	455
Fiftieth	467	507	478	551	492	467	455	495
Fifty-first	452	527	466	565	541	432	402	475
Fifty-second	472	445	472	584	556	413	474	502
....	....	....	548	....	....	....	....	....
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30	Dec. 29.	Dec. 28.

Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
752	922	1,144	695	1,051	929	920	1,111	1,276	905	953	1,010	957
710	813	990	1,084	1,110	955	1,019	892	1,102	1,037	1,187	1,157	1,074
833	641	965	1,016	873	870	1,094	932	935	963	964	941	947
600	625	882	1,217	776	888	926	887	814	1,002	904	815	866
636	654	838	939	711	726	648	776	928	814	850	907	763
710	627	849	828	662	708	756	722	741	846	838	815	1,005
503	601	683	754	673	657	623	736	758	802	751	732	773
483	600	679	701	693	756	642	700	698	754	769	751	826
492	529	764	620	558	692	665	732	693	831	675	716	736
530	569	866	609	590	655	646	653	781	716	709	717	747
543	533	688	613	589	851	659	661	670	736	624	686	728
501	571	705	635	595	686	600	615	693	682	688	660	811
451	529	778	547	530	647	543	677	677	680	641	639	737
498	588	610	594	541	609	553	633	633	621	605	650	722
493	609	690	516	546	621	531	715	640	702	573	613	747
415	570	679	630	524	648	569	676	616	661	641	618	688
509	544	648	630	541	654	535	667	673	673	612	601	737
494	583	673	579	543	622	504	680	565	630	618	602	733
492	605	617	563	521	628	562	715	658	627	615	671	774
503	546	679	582	550	659	557	683	670	600	607	643	714
471	638	664	553	611	603	566	715	625	621	612	583	671
557	691	708	584	540	701	580	780	658	691	566	654	675
492	631	680	578	572	712	611	835	669	700	661	672	734
480	651	748	598	587	658	583	795	677	684	640	704	800
499	647	762	617	617	627	638	805	700	779	665	731	889
511	673	741	581	563	664	638	767	710	772	762	705	969
508	....	....	....	....	709	....	....	....	....	....	764	....
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30.	Dec. 29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28.	Jan. 3.	Jan. 2.

Deaths Reported from Bronchitis, by Weeks,

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First	..	..	..	21	35	23	33	24
Second	..	..	..	26	31	31	22	37
Third	..	..	..	30	32	22	21	19
Fourth	..	..	..	27	41	32	27	23
Fifth	..	..	..	20	26	31	24	32
Sixth	..	..	34	36	27	33	31	27
Seventh	..	..	24	34	27	27	27	25
Eighth	..	..	29	17	33	40	32	36
Ninth	..	..	35	22	38	32	38	41
Tenth	..	..	16	33	31	38	28	38
Eleventh	..	..	24	30	23	42	31	25
Twelfth	..	..	31	34	32	49	33	28
Thirteenth	..	..	21	20	30	40	24	34
Fourteenth	..	..	30	24	16	37	28	36
Fifteenth	..	..	23	22	32	26	22	27
Sixteenth	..	..	20	25	27	22	24	28
Seventeenth	..	..	25	22	26	21	17	35
Eighteenth	..	..	31	15	22	23	20	25
Nineteenth	..	..	20	32	30	26	13	26
Twentieth	..	..	22	25	24	13	19	32
Twenty-first	..	"	23	14	12	14	15	20
Twenty-second	..	..	20	18	13	19	15	22
Twenty-third	..	..	8	20	12	19	14	12
Twenty-fourth	..	..	14	8	12	14	18	15
Twenty-fifth	..	..	9	9	14	18	9	20
Twenty-sixth	..	..	18	10	11	14	12	14
Twenty-seventh	..	..	13	12	22	11	10	20
Twenty-eighth	..	..	10	7	9	20	11	11
Twenty-ninth	..	..	15	11	13	11	14	12
Thirtieth	..	..	13	12	11	10	15	18
Thirty-first	..	..	10	12	13	14	4	7
Thirty-second	..	..	9	6	10	21	10	12
Thirty-third	..	..	17	14	6	16	9	10
Thirty-fourth	..	..	10	12	11	13	11	10

Since Week ending February 8, 1873.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
19	20	40	50	31	32	38	51	50	48	40	99	27
28	22	39	58	33	38	28	48	54	46	40	122	38
42	26	34	50	37	27	31	43	49	47	45	95	44
39	22	39	42	31	37	41	40	45	46	40	68	41
35	33	32	40	40	42	47	42	45	48	37	66	40
41	22	41	33	25	29	48	44	52	50	48	55	37
35	33	51	43	29	42	42	43	43	48	51	48	28
26	25	44	45	36	29	47	46	34	53	59	43	30
35	34	34	52	45	27	56	51	44	49	61	43	25
41	37	36	54	40	32	39	50	43	48	45	50	44
23	32	36	39	35	33	40	37	30	52	64	56	45
33	30	27	33	38	32	48	44	44	34	52	52	47
24	22	36	42	51	37	52	36	62	47	55	55	60
32	32	31	28	43	27	45	30	34	48	37	50	83
22	32	48	45	43	28	40	28	38	32	41	51	94
28	32	33	34	44	34	39	26	42	32	42	41	85
30	38	33	34	36	37	27	35	49	52	33	49	53
29	27	40	46	42	29	25	27	44	45	34	38	33
23	34	35	33	28	37	33	31	36	36	36	39	43
30	27	23	45	34	32	42	29	31	44	32	37	47
16	37	25	30	31	25	22	21	45	27	25	34	40
18	22	17	33	28	22	27	18	23	49	24	34	28
18	14	20	32	27	20	29	24	26	26	28	41	28
19	34	23	30	11	25	25	22	30	25	19	24	37
10	24	19	13	21	17	21	22	23	28	20	25	22
25	19	27	19	18	18	27	18	25	31	28	28	22
7	10	25	19	20	23	23	19	22	24	27	23	21
15	11	19	26	10	22	17	23	22	24	19	16	31
16	11	18	15	11	16	26	15	17	33	24	29	8
12	7	15	16	13	13	18	20	18	19	24	15	14
18	13	9	10	12	15	14	18	9	28	22	20	19
15	15	16	18	12	19	17	16	27	24	24	17	16
9	16	13	11	15	14	14	18	20	18	27	24	17
11	24	14	20	12	26	15	14	19	18	20	27	19

Deaths Reported from Bronchitis, by Weeks, Since

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Thirty-fifth	..	..	16	13	7	19	10	11
Thirty-sixth	..	..	11	15	10	15	9	21
Thirty-seventh	..	..	10	18	18	12	15	15
Thirty-eighth	..	..	9	16	21	13	12	15
Thirty-ninth	..	..	9	12	19	17	13	16
Fortieth	..	..	13	17	15	16	13	15
Forty-first	..	..	11	15	18	17	16	16
Forty-second	..	..	14	20	22	22	19	21
Forty-third	..	..	13	21	25	21	17	28
Forty-fourth	..	..	13	21	20	32	33	20
Forty-fifth	..	..	22	21	24	16	23	24
Forty-sixth	..	..	19	29	23	20	24	32
Forty-seventh	..	..	32	17	16	20	18	33
Forty-eighth	..	..	31	26	22	29	17	31
Forty-ninth	..	..	33	30	27	19	19	17
Fiftieth	..	..	22	22	20	31	30	30
Fifty-first	..	..	22	31	27	38	26	24
Fifty-second	..	..	36	18	26	34	28	19
.....	..	..	24	..	..	..	..	..
Date of ending—Week ennding	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 28.

Week ending February 8, 1873—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
9	21	22	14	23	15	22	20	30	21	29	22	26
15	18	25	14	14	15	15	22	30	22	21	25	25
14	21	24	17	15	14	20	22	31	24	27	25	24
20	19	18	23	20	16	28	23	29	30	32	23	28
21	18	16	18	23	21	20	28	30	29	27	16	23
11	25	12	12	14	24	26	20	28	27	22	26	20
15	20	24	17	22	22	18	41	39	28	24	29	31
22	26	21	18	17	27	21	35	25	41	29	29	27
33	23	27	25	23	27	21	32	46	29	29	22	32
34	32	32	29	20	30	29	36	34	34	26	31	23
23	24	24	29	31	35	21	36	42	37	33	30	29
32	22	37	32	28	44	24	43	32	34	33	40	26
34	37	36	30	25	26	31	31	31	34	38	32	34
29	49	37	31	23	43	44	44	35	45	18	25	35
37	44	37	35	26	43	24	56	43	38	31	35	34
25	39	42	29	45	40	41	49	44	41	50	29	43
25	41	39	30	36	44	51	56	34	39	40	38	45
32	48	38	38	43	37	43	53	50	51	50	22	54
34	..	..	..	..	48	..	..	..	..	..	49	..
Jan. 3.	Jan. 1.	Dec.31.	Dec.30.	Dec.29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec.31.	Dec.29.	Dec.28.	Jan. 3.	Jan.2.

Deaths Reported from Diarrhœal

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First	16	24	18	8	11	4	12	6
Second	24	24	20	13	11	5	6	16
Third	21	23	21	14	8	8	5	8
Fourth	12	16	18	7	10	10	14	5
Fifth	14	15	23	5	15	12	7	14
Sixth	18	25	25	10	13	12	5	8
Seventh	18	13	16	7	21	3	7	14
Eighth	22	14	24	12	7	4	12	10
Ninth	30	9	18	7	16	13	12	7
Tenth	23	18	22	4	7	10	9	8
Eleventh	18	17	21	12	8	12	13	11
Twelfth	17	21	25	11	19	15	13	8
Thirteenth	24	17	24	8	17	11	9	8
Fourteenth	24	22	19	12	14	7	14	13
Fifteenth	24	28	28	10	9	11	10	14
Sixteenth	28	37	29	11	9	13	5	17
Seventeenth	27	34	28	12	7	13	16	10
Eighteenth	28	29	21	10	15	14	25	9
Nineteenth	24	35	21	8	13	25	14	16
Twentieth	23	40	23	19	27	14	17	19
Twenty-first	32	34	22	18	29	15	25	13
Twenty-second	41	35	20	16	10	13	16	15
Twenty-third	43	48	24	23	20	29	23	32
Twenty-fourth	83	62	34	30	26	32	27	23
Twenty-fifth	110	119	48	45	42	37	60	48
Twenty-sixth	208	266	62	60	80	149	167	101
Twenty-seventh	264	639	169	142	188	372	276	184
Twenty-eighth	314	487	273	323	359	622	379	231
Twenty-ninth	261	438	405	392	518	460	331	305
Thirtieth	192	354	389	305	337	286	268	278
Thirty first	153	251	373	283	273	226	212	180
Thirty-second	173	203	297	243	228	225	192	160
Thirty-third	168	267	255	226	244	201	186	157
Thirty-fourth	156	266	180	196	192	180	191	139

Diseases, by Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
14	11	5	14	7	12	10	11	8	7	14	19	10
8	8	9	18	12	13	25	6	13	8	12	21	9
5	9	7	7	11	8	9	6	8	7	18	16	13
7	8	12	7	9	11	15	13	12	13	8	11	11
13	10	22	11	14	6	14	8	12	7	18	10	11
5	6	9	7	6	19	8	9	16	20	8	18	14
5	12	10	17	10	15	11	6	15	12	12	10	14
14	12	7	13	18	11	14	7	5	13	15	12	15
12	9	9	10	14	13	14	9	14	18	15	13	10
11	9	10	13	9	11	10	7	15	22	15	9	11
14	11	10	18	11	14	7	10	16	10	12	14	21
12	12	17	17	17	17	14	7	10	11	16	7	7
7	12	14	15	11	22	23	12	8	11	10	12	19
13	12	11	10	11	10	17	11	14	18	8	9	28
4	6	11	16	7	11	10	16	16	16	13	14	20
10	13	12	20	12	13	14	13	17	19	16	13	7
12	11	19	15	18	14	17	12	11	16	21	13	17
14	18	13	26	16	15	18	12	19	16	12	19	16
12	13	29	14	18	9	24	13	20	14	15	23	20
9	19	32	16	20	16	17	18	9	16	15	13	20
18	47	23	18	18	22	19	21	19	12	13	20	18
15	33	26	24	25	27	22	20	20	19	19	17	23
17	59	54	19	29	21	26	28	28	20	22	36	36
28	162	39	23	50	50	47	37	52	27	55	64	111
74	440	98	57	77	72	95	89	131	102	140	121	137
114	626	263	141	180	161	212	189	330	247	241	208	240
280	364	444	163	392	291	297	378	493	282	318	360	283
269	296	370	389	435	329	395	304	382	368	452	367	339
295	198	337	371	349	295	381	327	305	296	292	274	270
179	174	244	533	246	252	298	261	226	264	265	176	244
193	188	246	361	202	182	159	203	217	201	1 2	205	177
238	145	252	281	167	153	181	159	182	193	202	168	234
135	136	157	225	143	154	143	147	181	191	148	137	138
122	133	152	173	133	192	127	149	158	145	147	147	141

Deaths Reported from Diarrhœal Diseases,

Ward.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Thirty-fifth	160	198	171	151	224	195	222	137
Thirty-sixth	145	160	173	140	183	113	141	109
Thirty-seventh	125	168	125	137	150	93	107	81
Thirty-eighth	91	110	125	118	107	84	83	77
Thirty-ninth	78	99	93	120	85	48	87	70
Fortieth	54	83	81	72	72	40	71	62
Forty-first	35	73	53	60	46	31	48	65
Forty-second	53	65	56	44	22	27	49	55
Forty-third	44	55	44	49	34	23	34	28
Forty-fourth	29	46	34	37	18	19	27	26
Forty-fifth	21	47	31	30	17	16	23	22
Forty-sixth	25	34	23	24	8	10	18	23
Forty-seventh	16	29	15	12	12	7	15	10
Forty-eighth	15	30	19	18	14	6	8	10
Forty-ninth	15	15	17	10	13	8	7	11
Fiftieth	18	23	14	13	6	15	13	2
Fifty-first	18	22	11	12	11	10	11	8
Fifty-second	18	15	13	12	12	8	13	8
..	..	..	7	..	..	..	..	..
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 28.

by Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
103	1 0	177	1 8	91	146	121	148	135	167	103	130	135
108	100	182	116	99	156	102	111	122	128	119	110	112
108	76	154	123	72	193	104	126	109	121	93	109	96
78	82	133	102	72	118	84	107	90	89	98	83	116
64	59	127	76	73	85	59	97	62	74	57	62	90
58	53	95	77	55	85	65	75	45	60	51	70	86
53	52	81	68	40	90	35	54	33	43	43	40	73
49	36	75	53	25	72	31	53	32	31	45	41	36
37	31	45	44	28	61	24	36	25	18	32	23	35
37	21	49	34	27	49	14	24	13	15	25	17	21
7	18	38	27	19	34	7	26	22	15	8	20	13
29	16	32	32	11	15	16	21	18	11	11	11	21
10	11	24	17	17	22	11	14	8	8	16	8	11
12	18	18	13	19	21	17	15	13	17	15	8	4
10	9	18	10	9	12	12	18	6	15	19	10	10
11	7	8	18	9	13	5	21	16	9	16	9	16
9	3	16	11	13	3	12	11	15	8	11	11	13
7	17	15	14	18	9	13	11	4	17	16	9	13
9	..	..	..	..	14	..	..	..	.	..	10	..
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30.	Dec. 29	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28.	Jan. 3.	Jan. 2.

Deaths Reported from Diarrhœal Diseases of Children

Week.	*1871.	*1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
Firs	11	14	*16	4	4	2	10	4
Second	17	20	*16	12	5	3	5	11
Third	12	21	*16	9	3	....	3	4
Fourth	16	8	*16	4	8	5	10	....
Fifth	5	17	*11	4	10	7	6	12
Sixth	15	14	*21	9	11	11	3	4
Seventh	11	13	*15	4	10	....	6	10
Eighth	20	9	*17	10	4	3	*9	7
Ninth	18	14	*16	7	10	9	*6	6
Tenth	22	10	*18	3	5	6	*8	7
Eleventh	17	11	*13	9	6	7	*4	11
Twelfth	14	21	*19	5	15	12	....	5
Thirteenth	21	14	*14	5	11	10	*6	7
Fourteenth	21	16	*17	12	7	6	*12	11
Fifteenth	21	24	*25	10	6	8	*6	12
Sixteenth	29	37	*17	9	5	11	*7	15
Seventeenth	21	33	*25	11	6	9	*19	8
Eighteenth	26	25	*18	8	14	10	*17	8
Nineteenth	19	32	*19	8	10	21	*13	14
Twentieth	25	32	*19	18	24	13	*18	16
Twenty-first	33	38	*22	15	27	12	*15	11
Twenty-second	36	32	*17	14	9	12	*17	11
Twenty-third	36	46	*18	21	20	25	*16	26
Twenty-fourth	83	59	*33	27	24	28	*27	17
Twenty-fifth	118	152	*59	38	37	32	*64	42
Twenty-sixth	214	291	*57	52	76	141	*181	96
Twenty-seventh	279	620	*195	133	178	313	*281	180
Twenty-eighth	303	448	*252	316	342	596	*360	268
Twenty-ninth	235	403	*418	374	501	433	*285	291
Thirtieth	158	287	*363	288	298	269	*254	258
Thirty-first	147	202	346	262	251	220	*167	157
Thirty-second	151	199	275	221	210	206	*169	141
Thirty-third	152	248	224	209	226	180	*176	145
Thirty-fourth	138	241	157	176	178	162	*180	121

* Actual Deaths.

under Five Years, by Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
9	6	2	4	5	5	9	7	4	6	10	13	7
5	6	8	13	7	11	18	5	11	6	11	15	4
2	5	5	6	9	5	4	6	7	3	14	13	10
2	6	7	5	5	9	8	7	10	9	6	9	9
7	6	19	9	9	4	8	2	9	5	15	10	7
3	4	6	7	4	13	4	4	9	11	4	10	12
2	11	8	12	7	8	7	2	9	10	9	5	12
7	9	7	10	11	7	7	3	5	12	10	9	11
7	9	8	6	11	11	8	8	9	12	9	10	7
6	7	7	11	4	6	6	2	12	17	13	8	9
10	9	7	14	9	7	6	6	11	2	9	11	17
7	9	10	14	12	12	10	4	9	7	10	7	5
3	10	8	11	7	11	16	3	4	8	5	8	10
9	11	7	7	8	6	11	5	8	13	7	5	20
2	5	8	9	3	8	7	12	12	13	9	11	16
7	9	8	17	10	8	9	6	14	18	12	11	5
5	10	14	10	15	11	12	10	7	12	18	12	14
9	15	11	20	13	11	15	8	15	13	8	10	14
7	11	27	12	13	4	20	8	13	6	13	23	19
6	15	29	15	16	9	15	12	7	12	15	9	17
14	43	18	15	12	18	15	13	15	9	10	16	16
12	31	23	20	23	20	18	11	16	16	14	14	21
14	54	43	18	26	17	20	23	22	16	19	30	35
21	158	34	20	40	40	42	35	49	23	49	60	104
67	425	93	52	69	69	90	73	124	93	125	111	129
110	588	254	132	170	156	205	174	315	230	221	198	228
266	333	422	154	377	277	275	366	462	268	297	344	270
255	271	342	371	408	351	365	281	359	345	435	346	317
268	174	304	355	335	277	342	298	274	276	276	241	250
162	145	217	478	217	215	267	232	192	229	237	161	213
171	161	213	318	177	153	133	181	186	171	164	193	159
213	132	225	244	138	136	148	136	163	168	183	149	211
121	105	130	191	116	132	116	125	161	162	132	126	112
110	114	138	146	105	160	105	122	129	125	134	128	132

Deaths Reported from Diarrhœal Diseases of Children

Week.	*1871.	*1872.	1873.	1874.	1875.	1876.	1877.	1878.
Thirty-fifth	140	166	148	138	210	178	*197	122
Thirty-sixth	143	149	159	128	169	102	*124	97
Thirty-seventh	100	127	109	128	135	83	*94	74
Thirty-eighth	79	98	110	98	97	68	*71	67
Thirty-ninth	60	81	85	111	75	43	*71	59
Fortieth	34	65	70	61	64	30	*54	54
Forty-first	36	60	43	1	36	23	*37	55
Forty-second	44	56	43	37	20	19	*40	43
Forty-third	29	51	36	42	25	21	*27	25
Forty-fourth	20	34	28	33	15	14	*23	19
Forty-fifth	22	35	26	24	15	11	*13	17
Forty-sixth	15	13	15	18	6	10	*13	15
Forty-seventh	10	21	9	8	7	3	*11	7
Forty-eighth	18	20	19	14	11	6	*6	8
Forty-ninth	15	14	13	7	5	6	*7	7
Fiftieth	12	17	11	11	5	9	*7	2
Fifty-first	17	11	6	11	7	7	*7	5
Fifty-second	21	7	8	8	8	5	*12	1
....	....	....	6	....	...	....	....	....
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 28

* Actual Deaths.

under Five Years, by Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
92	95	156	108	73	135	100	125	123	147	88	121	119
103	85	162	96	83	134	82	101	117	118	106	99	97
97	69	134	96	60	160	90	109	91	107	74	97	84
65	72	115	89	62	111	71	94	70	80	90	76	104
57	49	106	62	60	56	48	87	51	62	46	55	79
52	47	74	58	42	60	48	65	38	57	43	60	76
47	45	65	53	31	75	23	46	22	35	33	32	60
44	32	63	44	18	64	21	45	24	26	35	38	31
30	21	39	32	22	50	15	31	17	16	19	21	27
28	13	38	27	18	39	9	21	8	11	15	16	15
4	15	31	20	12	21	4	17	15	10	5	17	11
20	7	14	22	7	12	10	17	10	9	6	8	17
7	7	19	8	14	16	11	11	5	7	10	3	6
9	11	10	9	13	20	12	10	10	10	10	7	3
7	4	11	4	5	9	7	10	4	4	12	6	8
9	3	6	12	7	9	3	14	8	5	11	6	6
6	1	11	5	9	3	9	8	11	6	9	7	11
6	13	8	10	11	8	8	6	4	15	13	7	9
4	....	....	....	....	9	....	....	....	....	....	6	....
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30.	Dec. 29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28.	Jan. 3.	Jan. 2.

Deaths Reported from Diphtheria

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First	20	21	42	50	74	77	22	27
Second	15	22	30	47	93	74	20	65
Third	19	18	39	38	68	93	29	43
Fourth	18	24	35	40	61	72	27	37
Fifth	22	32	31	40	58	77	23	37
Sixth	14	30	38	45	58	80	24	34
Seventh	14	11	32	51	71	52	29	45
Eighth	10	20	45	40	76	79	32	40
Ninth	19	28	29	34	73	75	37	35
Tenth	20	25	31	41	75	74	39	41
Eleventh	16	24	36	40	53	65	29	39
Twelfth	19	16	20	32	51	53	33	44
Thirteenth	17	22	20	39	57	47	23	37
Fourteenth	12	24	32	36	49	62	27	40
Fifteenth	19	14	31	53	62	48	27	31
Sixteenth	16	11	29	32	63	44	31	39
Seventeenth	13	20	18	40	63	40	31	28
Eighteenth	14	16	19	33	45	60	21	31
Nineteenth	12	23	23	30	42	50	18	30
Twentieth	10	23	25	29	54	57	24	25
Twenty-first	11	9	22	29	53	39	17	25
Twenty-second	17	15	26	33	55	45	31	29
Twenty-third	8	10	26	26	56	41	15	25
Twenty-fourth	7	12	25	23	61	28	15	28
Twenty-fifth	5	15	22	31	47	37	19	22
Twenty-sixth	9	15	35	39	61	32	18	25
Twenty-seventh	8	10	23	30	45	30	12	16
Twenty-eighth	5	8	25	28	50	28	26	17
Twenty-ninth	9	9	32	33	44	13	23	14
Thirtieth	5	8	24	26	43	25	17	8
Thirty-first	5	8	33	20	35	13	15	18
Thirty-second	8	13	26	39	42	22	13	10
Thirty-third	10	12	30	31	34	29	10	10
Thirty-fourth	8	7	29	27	32	16	17	15

and Croup, by Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
42	28	95	81	48	32	52	60	83	85	63	41	30
35	30	75	59	42	27	35	55	74	64	67	40	41
28	35	60	75	44	31	31	64	72	88	59	33	33
32	36	72	65	34	27	47	56	62	76	56	35	40
30	31	77	81	37	28	43	47	76	66	57	36	39
27	43	57	66	31	33	55	74	69	71	64	47	47
21	28	71	57	39	40	53	57	58	62	65	42	44
33	22	61	65	37	35	47	48	47	50	72	41	51
32	25	52	65	36	37	44	63	77	62	53	47	48
29	23	63	66	30	31	51	64	79	52	66	44	54
21	15	66	54	39	35	46	54	59	64	62	49	43
22	23	69	59	36	26	46	50	53	76	55	41	23
20	24	60	73	32	30	47	41	66	58	64	36	44
22	23	60	64	39	32	39	38	66	39	63	41	44
18	20	60	50	43	38	47	45	66	43	75	42	50
16	16	66	48	37	25	41	57	57	50	57	48	36
14	23	72	54	22	29	36	44	72	52	70	45	23
20	25	76	51	30	40	48	49	61	66	70	39	35
23	32	65	59	24	33	39	36	63	43	58	39	26
13	44	50	50	26	28	31	45	93	71	60	40	18
17	24	53	52	34	32	48	54	66	69	59	32	43
15	14	59	46	43	38	39	44	73	58	45	39	29
15	16	50	41	21	37	38	40	58	55	52	30	34
15	31	79	39	31	39	45	52	52	51	59	38	31
17	36	69	46	18	22	44	41	75	51	42	36	25
21	31	75	39	26	28	35	43	69	51	44	33	32
6	33	62	28	24	31	41	54	44	39	24	21	33
8	24	62	35	24	19	41	33	48	47	35	24	37
11	26	54	21	17	23	30	41	44	41	24	21	26
12	33	60	31	26	27	24	44	32	44	36	40	27
11	26	63	21	21	18	24	43	26	32	36	35	24
14	29	42	17	31	28	34	36	36	33	19	18	27
12	44	43	15	24	27	19	35	23	48	26	17	27
13	31	64	27	24	14	24	34	30	19	20	16	25

Deaths Reported from Diphtheria and

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Thirty-fifth	6	14	25	28	49	22	17	18
Thirty-sixth	6	17	36	34	43	16	22	19
Thirty-seventh	7	15	48	30	60	19	24	12
Thirty-eighth	9	30	38	28	46	24	31	18
Thirty-ninth	15	23	43	29	60	27	32	18
Fortieth	14	16	42	42	67	49	35	22
Forty-first	13	36	40	57	69	39	35	37
Forty-second	10	24	58	72	62	36	44	27
Forty-third	23	32	53	60	63	30	34	28
Forty-fourth	11	24	53	67	69	30	38	21
Forty-fifth	18	30	45	75	64	32	40	22
Forty-sixth	14	31	55	79	70	32	40	33
Forty-seventh	20	39	64	74	60	34	42	34
Forty-eighth	27	44	62	63	88	34	39	44
Forty-ninth	21	38	60	57	61	56	28	30
Fiftieth	23	37	50	77	86	38	46	35
Fifty-first	16	36	50	78	77	31	44	34
Fifty-second	19	28	56	70	77	42	35	37
..	..	..	65	..	..	..	..	..
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 28.

Croup, by Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
13	32	49	35	23	30	36	26	26	33	29	28	28
16	42	55	17	26	18	26	27	50	26	25	18	31
18	37	43	12	37	17	37	35	32	20	32	18	32
13	44	52	23	18	32	38	27	51	25	18	29	30
19	47	63	22	22	24	23	37	48	20	23	14	39
13	65	52	22	32	31	28	39	48	25	23	17	23
27	77	61	20	22	32	43	56	43	26	26	24	38
18	62	65	27	28	46	32	58	48	22	33	20	37
28	68	88	45	37	50	39	77	68	32	27	31	51
42	84	57	37	33	49	45	63	50	49	26	30	64
38	69	66	32	37	57	47	81	68	33	28	24	53
30	76	52	32	42	69	42	74	57	36	31	44	44
45	108	74	39	41	48	50	70	67	38	28	35	48
45	100	68	38	28	43	76	84	73	50	27	42	41
35	82	58	36	39	68	68	87	64	52	29	45	43
37	72	74	31	34	55	61	80	72	40	38	42	55
31	80	85	36	32	44	67	67	81	60	29	48	67
42	74	68	34	42	51	59	65	72	57	37	45	50
30	..	..	..	..	58	..	..	..	..	..	39	..
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30.	Dec. 29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28.	Jan. 3	Jan. 2.

Deaths Reported from Measles,

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First	28	2	5	6	..	10	..	14
Second	22	5	3	7	..	10	1	7
Third	33	..	6	7	2	9	2	8
Fourth	17	4	5	5	4	11	..	8
Fifth	22	2	9	6	1	10	1	8
Sixth	23	11	10	7	..	17	..	7
Seventh	15	11	8	8	1	14	..	6
Eighth	20	12	5	8	2	14	..	11
Ninth	19	15	7	7	3	17	2	13
Tenth	20	11	8	12	1	9	2	21
Eleventh	9	9	4	7	..	14	..	6
Twelfth	11	11	4	10	2	17	1	12
Thirteenth	6	13	1	9	1	16	..	12
Fourteenth	10	3	6	7	2	18	2	11
Fifteenth	12	10	4	8	..	11	2	13
Sixteenth	12	14	3	5	2	17	2	16
Seventeenth	9	10	1	16	2	8	2	11
Eighteenth	10	15	7	8	..	9	5	10
Nineteenth	5	17	8	14	2	9	4	3
Twentieth	5	13	11	10	5	11	8	11
Twenty-first	13	16	10	5	6	10	6	9
Twenty-second	8	12	5	15	6	13	3	8
Twenty-third	10	12	5	10	4	9	8	5
Twenty-fourth	7	15	10	5	9	9	7	6
Twenty-fifth	3	27	11	11	3	9	4	2
Twenty-sixth	3	18	10	7	6	4	8	5
Twenty-seventh	8	36	12	16	3	10	6	5
Twenty-eighth	12	15	14	11	8	6	4	3
Twenty-ninth	6	24	11	11	7	7	5	..
Thirtieth	2	15	11	7	7	2	6	1
Thirty-first	4	5	14	5	2	3	7	2
Thirty-second	4	13	8	4	8	1	6	1
Thirty-third	5	9	1	3	3	1	2	..
Thirty-fourth	3	9	7	2	2	..	3	1

by Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
1	20	2	18	16	11	28	..	61	7	25	7	15
..	19	5	28	16	7	37	1	73	6	24	6	18
..	33	3	41	11	5	33	2	68	4	29	2	33
..	23	4	36	14	7	41	1	52	7	22	3	32
..	24	5	35	12	13	30	1	75	9	29	10	13
..	21	8	46	15	7	29	..	49	3	25	10	19
1	20	4	37	7	12	30	1	56	9	24	6	13
..	28	6	28	12	6	29	1	24	4	12	6	10
..	13	6	23	20	3	31	1	25	2	26	10	15
..	27	11	31	10	4	32	1	30	3	21	11	15
1	11	5	15	21	8	20	1	28	8	20	11	16
..	13	9	24	21	8	28	4	17	3	16	11	12
2	13	9	44	20	11	21	1	15	3	13	14	22
1	12	9	29	24	12	25	3	10	4	13	13	18
2	18	7	33	29	15	25	2	18	5	19	14	23
4	15	9	8	27	4	27	4	9	10	13	31	20
2	18	7	24	21	9	17	1	5	19	12	32	14
4	25	10	25	22	14	30	3	4	5	8	27	21
2	18	16	28	23	21	20	1	9	16	8	26	21
4	9	13	29	35	13	13	2	9	8	7	37	19
2	18	15	40	18	20	13	7	8	8	5	30	15
3	8	21	30	19	24	13	5	3	19	5	24	15
6	3	24	16	29	28	10	6	6	16	10	37	24
6	5	21	21	19	21	20	5	6	18	8	25	16
6	7	23	17	19	30	20	9	6	25	5	10	20
6	3	17	19	18	30	19	9	5	23	6	27	16
4	10	13	9	17	31	11	14	5	20	3	23	13
8	4	6	24	22	23	14	9	12	19	4	25	12
7	4	10	20	16	31	16	14	4	16	4	11	16
9	2	8	12	21	33	7	14	6	23	6	9	11
3	3	10	6	12	18	3	8	5	17	1	14	8
5	1	8	6	10	19	6	10	1	11	3	10	8
8	3	6	7	13	12	2	10	1	13	1	9	5
6	2	4	4	11	7	6	4	..	9	1	12	3

Deaths Reported from Measles,

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Thirty-fifth	1	9	1	9	4	..	3	3
Thirty-sixth	..	1	3	7	3	1	2	1
Thirty-seventh	2	..	1	..	1	..	2	1
Thirty-eighth	1	2	2	1	2	1	..	4
Thirty-ninth	1	..	..	2	1	3	3	..
Fortieth	..	..	1	2	..	..	6	2
Forty-first	..	2	3	1	1	..	..	..
Forty-second	..	2	6	4	2	5	1	..
Forty-third	..	4	5	1	2	4	4	..
Forty-fourth	1	6	5	3	..	5	1	2
Forty-fifth	1	1	5	2	3	2	1	..
Forty-sixth	3	2	2	1	3	2	..	1
Forty-seventh	3	1	4	..	6	..	3	2
Forty-eighth	1	3	3	1	4	1	..	2
Forty-ninth	1	2	2	..	5	..	1	2
Fiftieth	1	3	7	2	6	..	4	2
Fifty-first	2	3	2	1	7	2	5	1
Fifty-second	..	2	4	3	10	1	1	1
.....	..	..	8	..	..	..	..	..
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 28.

by Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
3	1	5	7	3	13	2	7	2	16	1	8	5
1	..	5	3	4	9	1	6	..	8	2	7	1
6	3	1	4	5	13	1	7	1	8	1	7	4
5	4	1	1	3	6	1	3	2	11	..	6	4
5	..	2	..	1	5	1	4	3	7	1	2	5
4	1	4	5	5	5	..	6	1	9	2	3	4
4	..	..	5	5	6	..	8	1	11	1	4	10
4	..	1	2	3	5	1	9	4	9	1	7	4
..	..	..	6	8	4	1	19	2	6	2	5	3
4	..	..	6	4	10	1	20	4	7	..	7	3
7	..	1	6	3	8	4	42	4	8	4	13	4
9	1	4	2	4	15	4	36	6	12	3	11	4
8	3	8	6	7	16	1	45	6	7	6	12	5
4	3	3	4	6	24	1	42	5	12	3	12	6
10	1	15	13	6	23	3	66	..	22	5	12	8
14	1	12	8	11	16	..	65	6	19	3	15	17
20	1	11	9	13	27	2	60	6	26	5	15	2
22	6	19	7	5	20	1	65	10	21	7	19	13
12	..	..	..	..	22	..	..	..	..	..	22	..
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30.	Dec. 29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28.	Jan. 3.	Jan. 2.

Deaths Reported from Phthisis

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5
First	88	75	93	62	75	78	84	95
Second	85	71	76	78	93	56	79	85
Third	90	71	98	87	89	102	85	82
Fourth	90	78	94	55	84	82	81	80
Fifth	89	87	74	87	93	97	77	96
Sixth	93	77	101	81	95	83	87	77
Seventh	90	88	83	86	109	78	68	108
Eighth	101	122	90	83	77	79	90	90
Ninth	102	94	91	81	101	90	90	82
Tenth	94	114	100	74	105	102	89	101
Eleventh	79	80	87	93	81	83	97	87
Twelfth	83	100	87	74	114	83	74	110
Thirteenth	101	102	87	90	90	106	66	83
Fourteenth	78	88	77	92	93	78	82	77
Fifteenth	91	80	96	86	104	72	92	85
Sixteenth	95	82	99	78	98	87	77	96
Seventeenth	90	102	88	92	98	87	72	75
Eighteenth	71	89	93	77	92	93	87	82
Nineteenth	86	90	80	81	78	86	82	80
Twentieth	78	70	103	75	63	74	73	83
Twenty-first	61	76	81	84	79	73	89	71
Twenty-second	88	86	68	76	72	63	77	77
Twenty-third	60	78	79	65	63	68	73	81
Twenty-fourth	55	75	67	46	66	70	81	91
Twenty-fifth	76	71	75	69	58	76	57	77
Twenty-sixth	83	59	65	66	62	78	65	76
Twenty-seventh	80	81	69	72	76	73	62	81
Twenty-eighth	65	83	67	56	76	83	78	79
Twenty-ninth	78	78	67	69	78	85	71	57
Thirtieth	88	72	69	58	72	103	75	83
Thirty-first	79	88	58	62	65	75	91	103
Thirty-second	84	65	59	84	72	83	77	81
Thirty-third	72	69	70	63	69	57	70	87
Thirty-fourth	54	86	65	76	63	69	70	89

y Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
85	87	125	94	89	96	104	125	121	80	93	197	110
82	68	103	99	120	101	97	97	122	105	97	211	98
86	110	115	111	102	89	107	127	114	110	96	194	112
106	82	105	102	111	92	100	89	104	109	101	160	105
101	97	117	96	87	96	130	105	109	110	108	134	93
102	92	99	117	119	85	102	118	105	86	117	149	90
101	86	95	120	119	126	105	99	133	113	93	133	95
92	89	96	100	118	90	130	103	106	134	115	117	103
96	87	116	111	92	111	106	111	105	130	106	122	104
85	102	122	105	112	99	134	130	110	115	110	111	119
104	90	100	104	127	95	98	107	123	111	105	99	102
89	103	103	97	121	122	131	119	99	117	92	121	124
93	87	101	119	132	112	125	109	118	115	129	105	137
83	90	118	109	125	108	101	122	114	128	109	99	128
92	96	98	113	128	116	116	120	133	129	109	113	127
79	105	106	117	106	93	109	108	132	103	96	82	106
99	81	130	109	104	95	106	130	99	127	96	97	114
90	80	113	123	118	107	99	108	100	130	93	102	99
71	97	83	102	91	99	108	118	95	105	103	99	112
75	71	107	99	122	101	111	119	104	114	82	88	108
70	82	106	106	107	95	92	107	106	103	101	104	103
84	76	90	106	99	91	89	105	83	84	88	86	99
52	56	100	80	91	94	97	108	89	90	94	104	98
84	90	75	91	82	89	82	95	101	80	81	74	85
52	95	88	86	84	112	81	91	102	90	97	90	70
53	92	74	97	81	99	101	103	94	72	85	80	72
75	84	82	81	103	82	94	116	79	94	70	81	90
75	83	89	105	113	86	95	84	87	96	81	113	91
86	63	94	117	95	84	86	101	95	83	95	96	82
68	108	105	97	107	101	80	96	80	97	108	108	80
79	81	82	85	87	102	96	85	112	93	121	86	74
72	101	91	89	91	86	102	103	77	89	94	65	116
64	81	96	92	86	84	76	117	85	90	120	97	89
68	82	80	95	114	92	97	99	84	78	90	98	98

Deaths Reported from Phthis

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	187
Thirty-fifth	65	99	82	84	77	72	74	79
Thirty-sixth	81	65	70	79	61	73	79	74
Thirty-seventh	71	82	89	61	67	83	64	8
Thirty-eighth	72	76	89	82	78	80	81	77
Thirty-ninth	78	63	69	85	88	90	82	7
Fortieth	74	76	63	78	90	77	74	9
Forty-first	89	73	61	93	66	76	72	8
Forty-second	65	81	78	85	73	100	70	9
Forty-third	84	83	78	76	72	72	84	8
Forty-fourth	72	78	71	86	77	79	78	8
Forty-fifth	77	98	74	89	80	71	79	8
Forty-sixth	71	69	85	66	58	75	92	1
Forty-seventh	73	76	81	71	80	83	73	6
Forty-eighth	74	62	82	91	55	83	61	9
Forty-ninth	89	85	82	77	88	82	86	7
Fiftieth	91	83	78	99	71	69	75	9
Fifty-first	70	90	77	80	91	71	57	9
Fifty-second	75	71	67	90	80	87	82	10
..	..	..	73	..	..	..	..	.
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec.

by Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
51	71	93	74	68	105	100	88	92	113	78	98	73
69	85	101	98	88	103	98	100	100	75	114	104	112
94	100	83	93	78	94	85	88	78	94	101	84	101
76	83	111	109	95	93	102	76	94	73	92	83	107
57	88	106	75	88	97	98	86	106	87	90	123	77
97	99	98	94	80	84	97	104	94	93	107	107	76
74	104	102	82	92	100	90	102	105	101	102	81	87
66	88	90	124	98	108	102	105	89	103	80	97	104
107	71	104	120	88	106	110	80	105	112	85	93	102
82	91	129	103	97	112	82	98	90	89	101	80	95
86	94	120	88	92	104	95	126	93	88	82	110	99
83	79	104	95	89	111	86	109	100	81	89	85	87
81	98	104	91	111	104	99	114	96	94	86	78	101
105	114	122	106	93	105	75	96	103	112	85	98	103
79	94	94	106	110	127	103	109	100	99	113	94	98
94	114	118	103	100	123	77	107	100	106	94	102	97
100	100	104	92	112	94	96	117	100	111	97	98	86
78	100	107	103	101	92	88	109	91	99	131	96	103
88	..	..	..	..	110	..	..	..	..	..	105	..
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30.	Dec 29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28.	Jan. 3.	Jan. 2.

Deaths Reported from Pneumonia, by Weeks

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First	..	..	..	55	91	53	65	58
Second	..	..	..	56	86	61	70	85
Third	..	..	..	52	105	69	54	62
Fourth	..	..	..	44	88	58	52	47
Fifth	..	..	..	64	81	63	49	48
Sixth	..	..	66	51	72	78	45	61
Seventh	..	..	57	75	72	72	45	64
Eighth	..	..	48	57	86	72	50	62
Ninth	..	..	57	57	77	89	74	63
Tenth	..	..	63	62	73	108	66	85
Eleventh	..	..	59	64	92	83	65	58
Twelfth	..	..	71	66	87	71	65	70
Thirteenth	..	..	51	60	67	79	58	65
Fourteenth	..	..	70	92	69	60	50	62
Fifteenth	..	..	52	77	56	75	67	43
Sixteenth	..	..	68	64	62	60	58	60
Seventeenth	..	..	50	79	73	63	51	63
Eighteenth	..	..	55	62	76	70	65	61
Nineteenth	..	..	53	56	68	59	41	52
Twentieth	..	..	71	40	58	50	33	38
Twenty-first	..	..	67	62	47	49	45	40
Twenty-second	..	..	58	52	44	52	48	70
Twenty-third	..	..	50	42	28	37	28	35
Twenty-fourth	..	..	33	38	34	35	30	43
Twenty-fifth	..	..	32	25	31	31	24	29
Twenty-sixth	..	..	34	29	41	30	25	28
Twenty-seventh	..	..	32	22	43	27	20	22
Twenty-eighth	..	..	18	21	32	22	28	26
Twenty-ninth	..	..	33	31	32	30	20	18
Thirtieth	..	..	27	25	21	23	22	17
Thirty-first	..	..	26	19	23	26	26	14
Thirty-second	..	..	24	22	20	25	28	27
Thirty-third	..	..	19	23	32	19	24	16
Thirty-fourth	..	..	28	20	23	24	23	26

Since Week ending February 8, 1873.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
64	64	82	82	78	87	108	85	94	96	90	298	123
68	62	93	93	92	79	78	91	112	119	93	384	135
82	65	81	92	74	77	68	93	101	119	93	296	105
86	48	83	82	72	82	70	86	125	115	99	192	91
82	46	69	81	85	77	115	76	103	125	85	122	123
64	66	87	92	71	95	105	100	81	119	87	112	120
55	62	98	103	99	93	130	84	88	126	95	103	106
65	62	96	84	94	79	140	94	92	136	101	118	138
74	69	92	98	110	65	142	80	101	131	109	95	110
64	51	96	107	111	73	149	125	83	122	139	116	99
81	53	92	93	118	83	123	123	102	129	126	105	136
79	61	81	101	128	92	122	126	95	139	111	116	179
74	59	84	95	113	75	131	100	82	124	109	108	225
76	83	82	84	134	74	122	88	93	102	133	106	289
54	112	97	100	130	71	109	92	121	123	124	111	296
60	89	99	97	100	66	133	82	114	89	115	102	272
71	78	96	88	86	66	104	76	106	95	112	121	176
53	89	87	98	91	73	81	68	103	101	97	108	168
60	73	83	109	97	62	85	58	98	129	76	119	139
52	68	55	120	71	62	71	71	83	91	91	90	112
55	87	48	95	75	67	61	50	77	78	80	86	106
32	51	43	88	66	55	71	48	56	64	69	75	98
37	40	33	60	72	50	47	52	47	70	67	75	84
30	35	50	55	39	44	61	49	38	59	54	77	89
31	38	36	57	38	44	42	44	29	50	52	69	75
13	35	53	48	48	37	45	21	35	34	48	51	56
21	37	41	45	43	48	38	40	36	32	40	35	66
24	33	32	45	38	37	42	49	38	47	34	54	54
26	20	25	34	27	34	34	44	28	42	26	47	49
21	22	29	32	27	38	20	32	21	43	36	47	49
22	24	26	30	24	34	28	20	27	33	33	44	47
24	21	30	21	20	29	32	35	18	35	36	48	57
18	24	28	21	30	23	25	36	30	28	39	54	41
18	34	26	25	26	34	34	45	26	48	37	42	54

Deaths Reported from Pneumonia, by Weeks, Since

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Thirty-fifth	..	..	29	34	29	26	22	24
Thirty-sixth	..	..	26	17	29	23	19	25
Thirty-seventh	..	..	25	28	31	30	24	26
Thirty-eighth	..	..	21	28	31	33	28	24
Thirty-ninth	..	..	21	21	34	25	28	24
Fortieth	..	..	29	21	35	24	23	26
Forty-first	..	..	20	31	35	32	35	25
Forty-second	..	..	46	28	43	41	34	36
Forty-third	..	..	38	33	46	37	45	32
Forty-fourth	..	..	31	37	49	42	34	35
Forty-fifth	..	.	36	50	46	51	40	34
Forty-sixth	..	..	59	60	56	50	40	47
Forty-seventh	..	..	54	54	45	34	44	50
Forty-eighth	..	..	55	48	57	49	37	38
Forty-ninth	..	..	66	58	57	52	36	49
Fiftieth	..	..	46	58	53	41	49	51
Fifty-first	..	..	39	56	63	59	41	42
Fifty-second	..	..	49	58	56	58	48	45
..	..	..	50	..	..	..	..	..
Date of ending—Week ending	Dec. 30	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 28.

Week ending February 8, 1873—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
23	20	39	29	31	39	35	37	37	38	37	53	41
23	32	40	32	28	30	32	30	45	50	41	59	51
27	23	24	28	40	37	40	33	38	43	42	50	54
32	33	35	26	30	34	34	22	50	43	55	41	66
21	39	49	33	27	40	34	35	56	61	55	41	57
31	39	37	43	26	40	36	42	52	35	40	55	46
48	42	36	36	46	49	35	56	59	72	53	48	56
36	47	44	51	47	40	38	55	55	77	68	68	61
43	59	51	42	40	48	36	73	72	84	57	64	98
28	57	59	40	37	53	41	75	57	85	71	69	115
53	53	40	51	51	60	61	71	79	85	77	90	139
58	65	68	50	61	74	44	85	85	77	73	72	120
62	52	63	50	62	70	51	87	86	74	72	85	112
70	66	66	69	75	79	56	122	87	72	66	87	94
69	75	69	82	61	77	64	101	85	77	87	95	112
57	66	85	80	84	76	70	111	73	84	81	115	140
76	91	89	84	61	77	70	117	85	93	87	117	201
51	82	104	75	73	100	78	111	95	116	139	126	180
58	..	..	..	..	105	..	..	..	..	..	134	..
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30	Dec. 29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28.	Jan. 3.	Jan. 2.

Deaths Reported from Scarle

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First	28	14	21	26	23	13	32	22
Second	26	29	12	35	19	19	28	27
Third	27	20	16	23	10	15	16	28
Fourth	15	20	23	18	8	13	25	24
Fifth	27	25	22	26	18	13	21	31
Sixth	18	23	20	25	14	26	31	16
Seventh	19	30	26	26	20	16	18	27
Eighth	19	29	17	23	19	16	24	22
Ninth	19	22	23	34	12	22	22	29
Tenth	14	29	18	25	11	19	22	25
Eleventh	26	20	17	23	9	28	19	23
Twelfth	22	27	21	27	13	16	19	24
Thirteenth	17	17	18	23	12	28	25	28
Fourteenth	17	31	17	20	13	31	23	23
Fifteenth	20	27	16	21	14	32	33	18
Sixteenth	13	31	18	17	13	30	31	26
Seventeenth	15	30	20	12	12	29	27	26
Eighteenth	18	21	21	18	11	26	20	15
Nineteenth	18	41	24	16	17	25	20	17
Twentieth	14	29	23	21	17	28	19	22
Twenty-first	12	24	29	21	10	27	25	15
Twenty-second	21	28	23	19	9	19	23	33
Twenty-third	19	26	24	16	8	20	25	17
Twenty-fourth	11	29	19	23	14	29	22	17
Twenty-fifth	7	28	24	16	5	21	23	21
Twenty-sixth	12	17	16	20	16	23	24	27
Twenty-seventh	12	34	24	17	7	21	21	22
Twenty-eighth	8	18	18	11	7	19	19	12
Twenty-ninth	18	13	24	16	12	8	15	12
Thirtieth	9	12	19	5	6	6	10	10
Thirty-first	15	15	25	14	6	9	15	13
Thirty-second	18	6	13	10	3	5	15	13
Thirty-third	14	9	10	13	..	4	13	15
Thirty-fourth	6	7	10	11	3	6	11	7

Fever, by Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
53	4	39	77	11	8	18	13	12	35	47	11	16
54	7	42	68	20	13	14	7	6	21	49	9	22
68	14	40	102	19	14	22	13	11	26	54	9	20
60	7	48	115	20	9	13	10	16	27	55	10	23
48	6	43	101	16	13	17	15	5	27	44	13	20
69	11	40	91	14	17	18	14	10	29	54	10	26
69	10	48	116	15	15	16	8	8	30	47	11	30
50	5	43	81	21	12	24	9	14	27	58	13	33
44	8	32	88	14	16	15	10	16	28	50	8	24
60	7	30	79	11	13	23	7	12	19	54	9	25
54	5	43	81	28	7	9	8	13	28	46	20	21
65	1	37	82	24	24	18	9	10	27	59	12	28
54	7	31	74	25	11	21	13	11	26	57	9	25
42	11	37	64	28	16	15	10	7	22	71	14	35
24	7	49	75	13	7	14	14	13	32	54	7	37
55	9	42	78	22	19	23	13	15	32	57	5	49
46	9	46	65	23	23	19	9	16	36	51	7	37
52	8	48	55	31	14	14	10	14	28	34	12	23
42	5	57	54	32	16	16	8	11	44	48	8	34
42	13	33	61	30	19	21	12	8	31	26	8	29
31	16	40	48	24	16	12	9	14	31	36	6	53
31	9	37	40	26	11	21	7	16	32	28	6	33
31	9	32	50	29	11	14	11	7	32	26	13	34
24	8	25	31	21	10	13	7	19	32	26	4	33
28	5	32	39	18	12	10	6	12	33	9	11	24
27	8	44	27	13	17	4	4	12	31	7	6	24
23	6	41	21	15	13	9	5	9	23	7	9	30
23	3	34	13	9	14	9	5	7	15	10	5	30
27	3	34	15	10	11	10	4	8	21	7	7	23
22	2	29	16	8	10	5	10	4	19	6	4	19
8	7	28	12	1	7	3	4	7	22	2	4	25
6	8	24	11	4	7	4	3	6	14	4	4	14
9	7	24	9	5	2	2	6	6	8	..	5	10
9	3	20	8	11	5	5	1	4	19	2	4	9

Deaths Reported from Scarlet Fever,

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Thirty-fifth	11	3	17	13	5	6	9	10
Thirty-sixth	4	6	7	8	6	5	12	10
Thirty-seventh	6	5	9	17	2	6	13	8
Thirty-eighth	4	7	14	16	3	7	10	6
Thirty-nmth	3	5	14	8	2	7	13	10
Fortieth	7		12	14	3	5	16	11
Forty-first	9	13	12	4	4	7	16	14
Forty-second	8	10	15	9	8	9	18	12
Forty-third	16	8	16	18	4	7	8	11
Forty-fourth	14	12	18	8	4	9	10	17
Forty-fifth	10	17	25	11	5	9	10	19
Forty-sixth	13	15	20	6	9	21	16	17
Forth-seventh	18	15	23	11	7	23	18	30
Forty-eighth	19	14	22	16	13	18	14	31
Forty-ninth	8	8	37	9	12	9	15	28
Fiftieth	16	14	27	13	11	24	14	36
Fifty-first	14	23	29	18	9	20	15	43
Fifty-second	25	19	30	10	15	24	22	53
.....	..	..	46	..	..	..	..	..
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 28.

by Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
10	7	23	11	5	6	2	2	3	25	1	1	13
6	5	26	5	2	8	1	3	10	19	3	1	17
12	5	13	6	11	10	..	..	7	17	2	3	11
14	3	23	9	8	5	1	4	5	15	3	8	7
15	10	24	2	5	3	3	2	7	10	3	3	6
6	5	25	5	8	..	1	4	6	10	5	1	11
3	11	28	7	2	5	2	4	10	19	4	2	5
2	15	28	9	10	6	5	3	10	16	3	4	10
9	15	31	5	9	7	4	6	13	16	5	2	15
15	14	23	2	8	1	6	5	9	21	4	3	11
7	28	25	6	8	7	2	4	9	26	2	11	16
5	31	30	10	6	8	6	6	13	25	2	7	15
14	28	36	7	9	16	8	4	18	26	5	10	29
12	38	67	14	10	15	9	5	17	25	8	10	19
6	38	59	5	10	13	4	6	24	29	6	5	22
9	38	58	16	4	13	15	5	25	34	5	10	33
10	34	82	15	7	21	12	8	21	52	10	11	23
8	39	81	5	10	22	6	3	19	51	3	11	34
6	..	..	..	..	15	..	..	..	..	..	21	..
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30.	Dec. 29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28.	Jan. 3.	Jan. 2.

Deaths Reported from Small Pox,

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending.....	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First.....	1	15	13	2	22	14	..	..
Second.....	4	20	8	..	38	11	..	..
Third.....	10	25	7	..	39	25	..	..
Fourth.....	6	26	8	2	38	18	..	..
Fifth.....	11	25	10	5	33	16	1	..
Sixth.....	16	32	4	..	24	26	..	..
Seventh.....	9	25	5	..	34	8	..	..
Eighth.....	20	24	8	1	33	13	..	..
Ninth.....	20	22	4	1	17	22	..	..
Tenth.....	16	24	2	1	32	16	..	..
Eleventh.....	25	17	4	2	17	12	2	..
Twelfth.....	28	29	1	6	21	10	..	..
Thirteenth.....	34	37	..	4	23	8	1	1
Fourteenth.....	24	33	1	5	24	12	2	..
Fifteenth.....	32	35	3	5	20	12	..	..
Sixteenth.....	29	40	2	4	23	10	..	..
Seventeenth.....	23	29	..	10	22	12	2	..
Eighteenth.....	15	36	2	9	40	7	1	..
Nineteenth.....	26	48	4	7	43	7	..	1
Twentieth.....	21	36	7	10	47	7	..	..
Twenty-first.....	20	54	1	8	35	4	..	..
Twenty-second.....	23	29	3	6	38	6	1	..
Twenty-third.....	19	29	4	7	45	3	2	..
Twenty-fourth.....	30	48	3	4	33	9	..	..
Twenty-fifth.....	27	19	3	11	46	3	1	..
Twenty-sixth.....	19	21	3	3	40	9	..	..
Twenty-seventh.....	30	20	1	6	49	1	..	..
Twenty-eighth.....	24	9	..	10	38	4	1	..
Twenty-ninth.....	10	6	1	11	36	3	..	..
Thirtieth.....	16	11	..	6	29	..	..	..
Thirty-first.....	18	6	1	2	31	1	..	..
Thirty-second.....	12	2	..	12	17	1	..	..
Thirty-third.....	17	4	1	12	7	..	..	..
Thirty-fourth.....	7	4	..	5	8	1	..	..

by Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
..	..	7	12	..	..	..	..	..	..	..	..	..
..	..	9	13	..	..	..	2	..	1	..	..	..
..	..	9	7	..	..	..	1	2	..	..	..	..
..	..	5	11	..	..	..	1	3	3	..	..	..
..	..	1	20	..	..	..	1	7	..	..	..	..
..	..	6	21	1	..	..	2	3	1	..	..	..
..	..	5	17	1	..	..	..	6	..	1	..	..
..	..	7	12	..	..	..	4	2	1	..	..	..
..	..	2	14	1	..	..	..	5	1	..	..	..
..	..	8	11	1	..	..	2	1	2	..	..	..
..	..	12	12	1	..	..	1	1	4	..	1	1
..	..	10	14	1	..	..	..	4	3	..	..	..
..	..	13	12	2	..	..	4	2	4	..	1	..
..	..	9	8	1	..	..	1	1	7	..	..	..
1	..	12	5	..	..	..	2	5	4	..	..	..
1	..	9	9	..	..	..	..	3	7	..	..	1
..	..	17	6	1	..	..	1	2	8	..	..	..
..	..	12	8	2	..	..	1	7	6	..	..	..
..	1	19	4	..	..	..	2	5	5	..	..	..
..	..	20	7	..	..	..	1	7	5	..	..	..
..	1	15	9	..	..	..	1	4	4	..	..	..
1	..	20	4	..	..	..	1	4	3	..	..	..
..	..	15	4	..	..	3	..	2	2	..	..	..
5	..	23	6	..	..	..	1	1	4	..	..	..
2	..	10	4	..	..	..	..	2	1	..	..	..
1	..	16	2	..	..	..	1	..	1	..	..	..
..	..	7	2	..	..	..	..	3	1	..	..	..
7	..	6	2	..	..	1	..	1	..	..	..	..
..	..	8	..	..	..	1	..	2	..	..	..	..
..	2	8	3	..	..	..	..	..	..	..	..	..
1	..	12	..	..	..	..	..	1	..	..	..	..
1	..	7	1	..	..	..	..	1	..	..	..	..
2	..	6	..	..	..	..	..	1	..	..	..	..
1	..	6	..	..	..	..	..	..	..	..	..	..

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878
Thirty-fifth	13	2	..	10	12	..	..	..
Thirty-sixth	9	1	..	9	6	..	..	..
Thirty-seventh	2	1	..	4	19	1	..	..
Thirty-eighth	4	1	..	11	9	..	..	..
Thirty-ninth	4	3	..	11	8	1	..	..
Fortieth	4	1	..	4	10	..	..	..
Forty-first	9	3	1	17	13	..	..	..
Forty-second	8	2	1	13	8	2	..	..
Forty-third	2	3	..	8	13	1	..	..
Forty-fourth	6	3	..	14	11	1	..	..
Forty-fifth	4	12	1	15	13	..	..	..
Forty-sixth	7	4	1	20	15	..	..	..
Forty-seventh	10	10	2	17	19	..	..	..
Forty-eighth	13	5	2	30	14	..	..	..
Forty-ninth	19	5	..	29	14	1	..	..
Fiftieth	12	11	1	21	13	1	..	..
Fifty-first	14	8	1	32	14	..	..	..
Fifty-second	18	3	..	9	8	1	..	..
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 2

by Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
1	..	3	..	..	..	..	..	2	1	..	..	..
..	..	4	..	..	..	..	..	1	..	..	..	..
..	..	2	..	..	..	1	..	3	..	..	..	..
..	2	1	..	..	..	1	..	..	..	..	..	..
..	..	3	..	..	..	3	..	1	..	..	..	..
..	..	3	..	..	..	1	..	1	1	..	..	..
..	1	4	..	..	..	1	..	..	..	..	..	..
..	1	1	..	..	..	1	..	1	..	..	..	..
..	..	7	..	..	..	..	..	..	..	..	..	..
..	..	7	..	..	..	1	..	..	..	..	..	..
..	..	2	..	..	..	1	1	1	1	..	..	..
1	1	7	1	..	..	3	..	..	..	..	..	..
..	3	8	..	..	..	1	..	..	..	..	..	..
..	..	3	..	..	..	2	..	1	..	..	..	..
..	7	12	..	..	..	..	..	..	..	..	..	..
..	2	12	..	..	..	1	..	..	..	..	..	..
..	3	11	..	..	..	2	..	1	..	..	..	..
..	6	9	..	..	..	..	..	..	..	..	..	..
Jan. 3.	Jan. 1.	Dec. 31.	Dec. 30.	Dec. 29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 31.	Dec. 29.	Dec. 28	Jan. 3.	Jan. 2

Deaths Reported from Typhoid

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Date of beginning—Week ending	Jan. 7.	Jan. 6.	Jan. 4.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 6.	Jan. 5.
First	6	3	4	4	1	6	4	6
Second	7	6	2	6	7	5	6	5
Third	1	..	9	6	12	3	3	2
Fourth	6	5	5	7	5	3	2	2
Fifth	2	7	5	5	4	7	2	2
Sixth	3	5	3	5	4	2	5	6
Seventh	3	7	4	..	8	5	6	3
Eighth	2	1	2	5	1	6	6	1
Ninth	4	4	5	5	3	4	4	3
Tenth	7	4	5	7	7	5	2	..
Eleventh	1	8	3	4	..	4	1	1
Twelfth	3	7	3	6	5	4	2	3
Thirteenth	5	5	6	2	7	2	..	1
Fourteenth	4	4	6	5	4	3	1	1
Fifteenth	3	4	4	4	10	3	..	4
Sixteenth	2	3	2	3	6	6	2	3
Seventeenth	6	6	3	5	2	5	3	1
Eighteenth	2	5	3	1	5	5	2	1
Nineteenth	2	5	6	4	4	5	8	4
Twentieth	3	6	3	1	4	4	7	4
Twenty-first	6	2	10	2	5	1	4	1
Twenty-second	3	7	4	1	4	5	7	4
Twenty-third	4	4	5	5	6	6	1	1
Twenty-fourth	1	3	6	5	3	1	4	5
Twenty-fifth	1	6	2	4	2	5	5	..
Twenty-sixth	1	5	5	2	6	5	2	..
Twenty-seventh	9	10	3	2	5	4	3	3
Twenty-eighth	..	4	4	4	3	9	..	4
Twenty-ninth	2	7	3	3	3	4	3	2
Thirtieth	6	7	5	4	9	4	9	7
Thirty-first	2	8	3	2	9	3	2	5
Thirty-second	4	18	5	2	9	7	5	5
Thirty-third	7	12	6	8	13	13	8	8
Thirty-fourth	6	7	9	8	6	6	8	5

Fever, by Weeks, Since 1871.

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Jan. 4.	Jan. 10.	Jan. 8.	Jan. 7.	Jan. 6.	Jan. 5.	Jan. 10.	Jan. 9.	Jan. 8.	Jan. 7.	Jan. 5.	Jan. 4.	Jan. 10
4	3	1	4	4	7	1	6	7	5	9	7	3
5	4	7	6	3	4	3	5	9	4	4	7	3
5	1	4	6	4	3	3	3	4	1	4	2	3
5	..	4	5	5	2	7	1	5	2	9	5	3
3	3	2	5	6	4	1	2	4	2	5	2	2
4	2	3	4	4	3	4	3	3	2	2	9	5
..	6	2	5	2	7	4	1	3	4	4	6	3
3	5	3	3	5	4	2	2	4	4	4	5	2
2	2	1	3	8	8	3	5	5	3	6	6	1
2	2	3	5	7	5	1	6	5	2	2	3	6
4	4	6	8	5	5	3	8	3	2	6	5	1
1	8	9	3	4	3	3	7	5	2	5	5	3
..	6	9	3	6	3	3	5	5	6	5	3	8
1	4	11	1	4	..	..	1	5	2	6	3	2
3	3	7	3	5	1	3	6	2	4	5	5	2
1	1	11	5	7	3	4	5	2	4	5	1	4
4	4	8	6	2	2	5	..	2	2	3	2	3
3	3	8	5	6	5	5	1	1	6	2	1	4
2	2	9	3	2	6	2	2	2	3	4	3	5
3	4	8	5	4	2	4	3	3	5	5	4	4
1	3	2	5	3	1	3	2	3	3	4	1	6
2	..	5	3	5	6	4	1	2	6	2	2	7
4	3	4	1	3	1	5	1	3	2	4	3	6
4	2	3	2	3	6	2	2	5	3	4	2	2
1	4	3	4	8	5	4	..	4	3	6	3	7
..	4	9	2	5	5	4	3	3	3	2	1	2
2	5	4	6	8	2	6	3	5	4	5	3	4
1	4	8	5	8	4	1	4	7	3	4	6	6
4	4	11	7	8	5	6	6	5	8	5	5	11
1	6	8	6	6	10	5	6	8	13	10	8	7
3	7	5	7	9	6	5	7	14	11	13	12	8
5	5	9	5	14	9	6	3	11	5	10	8	13
12	4	7	14	12	5	6	5	16	8	15	10	16
5	7	14	12	15	15	8	11	11	10	20	12	15

Deaths Reported from Typhoid Fever.

Week.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
Thirty-fifth	11	19	14	7	9	8	9	17
Thirty-sixth	8	4	17	6	11	8	13	9
Thirty-seventh	6	17	8	10	18	10	10	5
Thirty-eighth	10	13	3	10	15	10	5	7
Thirty-ninth	9	13	17	6	17	8	11	11
Fortieth	7	11	14	10	9	9	7	7
Forty-first	8	5	8	5	11	3	8	13
Forty-second	6	11	6	7	11	4	8	12
Forty-third	9	3	6	10	10	9	8	5
Forty-fourth	7	5	4	12	4	5	8	8
Forty-fifth	8	15	8	10	11	13	12	3
Forty-sixth	3	8	11	5	5	7	6	9
Forty-seventh	5	8	4	3	7	6	7	4
Forty-eighth	7	7	4	12	9	2	7	7
Forty-ninth	3	8	6	5	7	6	4	4
Fiftieth	4	5	7	6	2	5	7	5
Fifty-first	9	8	6	9	5	6	10	3
Fifty-second	9	7	3	3	3	..	6	10
..	..	..	4	..	..	..	..	..
Date of ending—Week ending	Dec. 30.	Dec. 28.	Jan. 3.	Jan. 2.	Jan. 1.	Dec. 30.	Dec. 29.	Dec. 28.

by Weeks, Since 1871—(Continued).

1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
7	3	9	13	13	11	10	14	8	15	17	11	10
5	4	17	11	29	18	9	8	13	17	15	15	9
5	10	18	11	22	20	11	15	11	19	15	17	19
3	7	18	8	16	11	18	18	14	17	18	17	24
1	11	16	13	12	14	9	13	13	23	7	16	11
7	6	10	15	15	13	14	13	10	12	14	8	18
7	8	20	15	23	14	14	16	6	15	8	14	12
5	7	11	18	18	11	8	7	9	12	12	14	9
9	4	13	17	19	14	10	16	13	13	14	7	12
5	12	11	14	18	15	8	12	6	6	16	11	14
1	2	11	13	24	22	7	8	3	10	8	10	17
2	9	13	9	15	11	11	8	7	13	11	10	10
2	7	11	5	10	9	6	10	9	7	10	7	9
1	6	16	6	15	15	7	12	2	6	8	5	11
4	7	8	5	3	10	8	14	7	8	7	8	5
8	6	12	3	7	12	5	8	4	10	7	11	5
4	1	14	6	5	7	7	3	4	7	5	3	4
3	3	9	8	5	3	2	7	6	4	6	5	7
4	..	..	..	..	5	..	..	..	..	..	7	..
Jan. 3.	Jan. 1.	Dec.31.	Dec.30.	Dec.29.	Jan. 3.	Jan. 2.	Jan. 1.	Dec.31.	Dec.29.	Dec.28.	Jan. 3.	Jan.2.

Deaths from Accidental Poisoning since 1870.

Poisons.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Acetic acid	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Aconite	1	..	..	..	..	2	..	..	..	..	..	..	..	1	2	..	1	..	..	..	1	..
Ammonia	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	1	3	..	1	4	..	..
Arsenic	..	..	1	..	..	..	..	..	..	1	1	..	..	..	1	1	1	..	3	..	2	2
Taxidermist	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Paris green	..	..	..	..	4	..	1	1	1	..	..	..	..	..	..	3	1	..	..	4	2	1
Arsenite of copper	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Alcohol (whiskey, wine, etc.)	1	1	1	..	..	..	..	1	1	2	2	1	1	1	1	1	..	2	..	..	1	1
Atropine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Aloes, solution of	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Belladonna	..	..	..	..	..	..	..	1	3	..	..	..	..	1	..	..	..	2	..	..	..	1
Benzine	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
Bromidia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
Cocaine and hydrate of chloral	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Cloves—oil of—in milk	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Carbonic acid gas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Carbonic acid gas in brewer's vat	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Carbonic oxide gas	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..
Charcoal gas	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..
Coal gas	..	5	..	..	..	1	..	..	..	1	..	..	1	1	..	1	1	..	..	..	3	..
Carbolic acid	1	2	1	1	2	1	..	1	..	..	2	2	1	3	3	2	5	3	6	9	3	10
Creosote	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..
Chloroform	1	1	1	..	2	..	1	1	3	3	1	1	..	..	2	1	4	1	1	5	4	1
Colchicum	..	1	1	2	1	..	..	..	1	..	..	..	..	..	1	1	..	..	..	..	..	..
Chamomile	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chloral	..	1	1	..	..	..	2	1	1	2	2	3	1	2	3	3	1	2	1	..	..	..
Cholera mixture	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Castor oil bean	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Corrosive acid	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..			..
Corrosive substance, unspecified	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..			..
Copper, sulphate of	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..			..
Cresoline	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..			..
Cantharides	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1			..
Ether	..	..	1	..	..	1	1	..	..	..	..	..	..	..	1	2	1	..	1	1		2
Fusel oil	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..			..
Gelsemium	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..			..
Hyoscyamus	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..			..

Deaths from Accidental Poisoning since 1870—(Continued).

Poisons.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Hydrocyanic acid	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cyanogen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Oil of bitter almonds	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Prussic acid	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Cyanide of potash	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Hydrogen	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Illuminating gas	1	7	1	1	1	..	..	..	2	..	9	12	16	11	18	13	27	22	32	33	38	35
Irritant Poison	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1
Iodine	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..
Insect bite of hand	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..
Kerosene oil	..	..	..	..	1	1	..	1	1	2	..	..	..	1	1	..	..	..	..	..	1	..
Lead	..	2	5	2	..	2	4	3	4	5	7	10	7	6	5	6	10	6	8	7	7	6
Lead, sugar of	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Lime-water	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Limburger cheese	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Mercury	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	1	1	..	1	..
Mercury, nitrate of	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Corrosive sublimate	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	..	1	2	1	2	..
Mercurial salivation	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Muriatic acid	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	1	..	..	..	1	..	1
Magnetic (muriate ? of) zinc	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Medicine for abortion	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..
Nitrate of silver	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Nitric acid	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..	..	1	..	1	1	..
Narcotic poison	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Nitrous oxide gas	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Opium	2	..	..	..	3	2	3	1	1	1	3	5	5	4	3	7	3	9	9	8	5	7
Magendie's solution	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Paregoric	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..
McMunn's elixir	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Laudanum	..	..	1	..	1	..	1	4	3	1	3	1	2	3	2	2	1	..	..	1	1	1
Morphine	2	..	3	2	3	1	2	1	1	3	3	5	1	6	3	9	..	2	5	5	3	4
Dovers Powder	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
Oxalic acid	..	1	1	..	1	..	..	1	..	..	1	2	..	..	..	..	..	..	..	6	..	1
Pyro-gallic acid	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Pennyroyal oil	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Pastry	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..

Deaths from Accidental Poisoning since 1870—(Continued).

Poisons.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
Phosphorus	..	..	1	..	2	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	1
Potash	..	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	1	..	..	..
Potash, caustic	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Potash, bichromate of	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Lye	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Potash, chlorate of	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..	..	..	..	2	1	..	..
Pickles	..	..	..	..	3	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Rhubarb	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..
Rhus	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Rat poison	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rough-on-rats	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1	2	1	1	..	1	1
Rattlesnake bite	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Soda, bromide of	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
Sewer gas	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Mephitic gas from privy	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..
Sulphureted hydrogen from privy	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Strychnine	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sulphuric acid	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Sulphurous acid	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stramonium seed	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Tartar emetic	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	1	..	..	..	..
Turpentine	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Tobacco	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Unspecified poison	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Veratrum viride	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Wormwood	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Proprietary Medicines.																						
Dr. Laville's rheumatic medicine	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mrs. Winslow's soothing syrup	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..
Dr. Bull's cough syrup	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..
Cough syrup	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Total	12	26	23	14	28	16	15	26	26	29	40	49	48	50	55	61	68	58	76	97	82	78

NOTE.—The yearly deaths in this table do not, in all cases, agree with the number published in the various annual reports, on account of differences of classification, e. g., this table includes deaths from illuminating gas, chloroform and ether, which, in several annual reports, are classified wholly or partially under "suffocation," while it excludes deaths from septicæmia, which have in past years often been put under "poison."

Deaths by Puerperal Diseases, According to Age and Cause, from 1866 *to* 1891.

Year.	ABORTION AND MISCARRIAGE.									CHILD-BIRTH.								
	Age—Years.								Total.	Age—Years.								Total.
	10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.		10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	
1866	..	1	..	4	..	..	..	..	5	..	..	2	..	5	4	2	..	13
1867	..	1	1	..	2	4	..	..	8	..	..	1	4	9	9	3	..	26
1868	..	1	..	..	..	..	1	..	2	..	4	5	10	6	5	1	1	32
1869	..	..	1	..	..	..	1	..	2	..	2	3	5	6	6	3	..	25
1870	..	1	..	4	..	2	..	..	7	..	..	5	3	7	7	..	1	23
1871	..	1	4	11	7	5	1	..	29	..	2	12	13	14	7	3	..	51
1872	..	4	3	5	9	4	1	1	27	..	..	15	11	21	8	1	..	56
1873	..	2	5	8	9	5	4	..	33	..	3	11	6	10	7	5	2	44
1874	..	1	1	7	1	6	2	..	18	..	3	3	8	7	14	3	..	38
1875	..	1	2	6	3	3	2	..	17	..	4	7	10	9	7	2	..	39
1876	..	..	2	1	5	5	3	1	17	..	1	9	16	12	3	2	..	43
1877	..	2	1	4	4	2	2	..	15	..	1	5	11	16	8	2	..	43
1878	..	1	6	8	5	2	..	..	22	..	2	11	6	5	12	3	..	39
1879	..	..	8	8	6	1	1	..	24	..	3	9	15	12	10	2	..	51
1880	..	1	4	11	8	13	8	1	46	..	2	12	20	12	12	6	1	65
1881	..	1	7	7	10	6	1	2	34	..	3	15	19	18	16	6	1	78
1882	..	3	4	10	10	12	6	..	45	..	3	15	14	7	8	7	2	56
1883	..	2	4	5	4	11	2	..	28	..	1	22	16	15	7	4	..	65
1884	..	2	5	4	8	12	3	..	34	..	1	10	23	19	12	6	..	71
1885	..	..	7	12	12	5	4	..	40	..	..	13	14	10	6	5	..	48
1886	..	1	5	10	10	6	5	..	37	..	1	7	15	10	17	8	..	58
1887	..	1	8	12	11	9	2	..	43	..	4	5	15	11	7	3	..	45
1888	..	1	11	9	10	8	2	..	41	..	8	12	16	15	13	6	..	70
1889	..	2	10	9	13	12	1	..	47	..	3	9	18	9	7	1	..	47
1890	..	..	9	13	15	5	3	..	45	..	..	7	7	5	4	4	2	29
1891	..	4	8	9	10	14	2	1	48	..	..	4	5	3	4	1	1	18

Deaths by Puerperal Diseases, According to Age and Cause, from 1866 *to* 1891—(Continued)

Year.	EXTRA-UTERINE PREGNANCY.									FLOODING, PLACENTA PRAEVIA.								
	Age—Years.									Age—Years.								
	10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	Total.	10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	Total.
1866	..	..	..	..	1	..	..	..	1	..	1	5	5	12	11	3	1	38
1867	..	1	..	..	..	..	..	..	1	..	1	4	11	5	2	5	..	28
1868	..	..	..	..	..	..	..	..	..	..	2	12	10	13	2	1	..	40
1869	..	..	..	..	..	..	..	..	..	..	1	1	8	7	11	4	1	33
1870	..	..	..	1	1	..	..	..	2	..	1	4	9	11	11	4	1	41
1871	..	..	..	2	1	..	..	..	3	..	..	4	2	9	10	5	..	30
1872	..	..	..	..	..	..	..	..	..	..	1	4	7	7	10	3	1	33
1873	..	..	1	..	..	..	..	..	1	..	2	1	7	9	9	5	1	34
1874	..	..	..	1	1	1	..	..	3	..	..	5	9	14	8	2	1	39
1875	..	..	..	..	..	..	..	..	..	..	..	5	9	9	14	7	2	46
1876	..	..	..	1	..	..	..	..	1	..	..	7	9	10	11	3	2	42
1877	..	..	..	1	..	..	..	..	1	..	..	2	2	6	5	6	..	21
1878	..	..	..	2	..	2	..	..	4	..	..	2	3	9	8	3	2	27
1879	..	..	1	..	1	..	..	..	2	..	1	3	3	12	8	3	2	32
1880	..	..	..	..	..	..	..	..	..	..	..	5	4	7	8	1	3	28
1881	..	..	..	1	1	..	..	..	2	..	..	3	2	11	8	1	2	27
1882	..	..	..	..	..	..	..	..	..	..	1	..	8	6	3	2	2	22
1883	..	..	1	2	1	..	..	..	4	..	..	3	8	7	9	8	1	36
1884	..	..	1	..	1	..	..	..	2	..	1	8	11	7	9	5	..	41
1885	..	..	..	1	1	..	..	..	2	..	2	4	9	15	11	5	..	46
1886	..	..	1	2	1	..	..	..	4	..	3	4	10	10	8	6	..	41
1887	..	..	2	3	..	2	..	..	7	..	1	4	3	14	8	3	3	36
1888	..	..	..	1	1	1	..	..	3	..	2	3	8	6	14	4	1	38
1889	..	..	1	1	4	1	..	..	7	..	1	7	9	2	6	6	..	31
1890	..	..	..	1	2	2	..	..	5	..	1	4	10	12	7	6	..	40
1891	..	..	3	2	4	4	1	..	14	..	2	1	4	7	5	5	..	24

Deaths by Puerperal Diseases, According to Age and Cause, from 1866 *to* 1891—(Continued).

Year.	PHLEGMASIA DOLENS.									PUERPERAL CONVULSIONS.								
	Age—Years.								Total.	Age—Years.								Total.
	10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.		10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	
1866	..	..	..	..	..	..	..	..	..	..	6	7	7	6	4	..	..	30
1867	..	..	..	..	..	..	..	..	..	..	7	16	6	9	8	6	1	53
1868	..	..	..	..	1	2	1	..	4	..	7	14	4	8	2	1	..	36
1869	..	1	..	1	1	..	..	..	3	..	9	15	8	10	5	1	..	48
1870	..	..	..	..	..	1	..	..	1	..	3	20	7	7	5	3	1	46
1871	..	..	..	3	..	1	..	..	4	..	5	16	15	11	7	2	1	57
1872	..	..	2	2	1	..	1	..	6	..	7	20	11	8	9	1	..	56
1873	..	..	2	..	..	..	..	..	2	..	2	14	11	5	2	1	..	35
1874	..	..	1	1	3	2	..	..	7	..	5	17	11	6	8	3	..	50
1875	..	..	1	1	1	2	..	..	5	..	2	7	9	2	2	4	1	27
1876	..	..	..	..	1	2	..	..	3	..	4	9	5	5	10	2	..	35
1877	..	..	1	1	..	1	..	..	3	..	2	6	3	2	5	1	1	20
1878	..	..	..	1	1	2	..	..	4	..	3	5	7	4	5	..	..	24
1879	..	..	1	..	1	..	1	..	3	..	8	4	4	4	4	2	..	26
1880	..	..	1	2	..	1	..	..	4	..	4	9	8	5	1	2	..	29
1881	..	..	2	..	1	1	..	..	4	..	2	4	6	10	7	..	..	29
1882	..	..	1	2	1	..	..	..	4	..	6	10	8	6	5	..	..	35
1883	..	..	..	..	2	..	1	..	3	..	1	7	6	3	..	3	..	20
1884	..	..	..	3	2	3	..	..	8	..	4	9	7	4	2	3	..	29
1885	..	..	..	..	1	..	..	..	1	..	3	12	9	7	2	3	..	36
1886	..	..	1	..	..	..	..	..	1	..	4	8	10	4	3	2	..	31
1887	..	..	..	2	..	..	..	..	2	..	3	8	5	2	1	1	1	21
1888	..	..	1	..	1	..	..	..	2	..	7	10	9	5	4	1	..	36
1889	..	..	..	..	2	..	..	..	2	..	1	5	7	5	1	4	2	25
1890	..	..	..	..	..	..	..	..	..	..	3	12	14	9	5	3	..	46
1891	..	1	..	..	..	..	..	..	1	..	7	18	14	9	4	3	..	55

Deaths by Puerperal Diseases, According to Age and Cause, from 1866 *to* 1891—(Continued).

Year.	PUERPERAL FEVER.									PUERPERAL MANIA.								
	Age—Years.									Age—Years.								
	10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	Total.	10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	Total.
1866	..	11	36	31	28	17	7	..	130	..	2	1	2	1	..	..	..	6
1867	..	5	10	17	14	13	4	..	63	..	..	1	..	..	1	1	..	3
1868	..	12	25	22	23	14	4	1	101	..	2	2	1	1	..	1	..	7
1869	..	7	17	27	28	21	6	2	108	..	..	2	1	..	..	1	1	5
1870	..	14	35	31	35	27	7	1	150	..	..	3	2	1	..	..	..	6
1871	..	13	52	63	32	25	7	1	193	..	2	1	2	3	..	1	..	9
1872	1	20	68	75	66	42	10	2	284	..	4	3	1	1	..	..	..	9
1873	1	21	73	70	42	35	15	1	258	..	..	7	5	4	..	..	..	16
1874	1	20	63	58	47	28	14	1	232	..	1	1	1	1	1	..	..	5
1875	..	13	42	70	52	31	10	4	222	..	..	3	4	1	..	..	..	8
1876	..	13	40	66	31	31	9	..	190	..	1	1	2	2	1	..	..	7
1877	..	13	56	41	42	25	7	1	185	..	..	2	3	1	1	..	..	7
1878	..	16	35	52	30	27	11	1	172	..	..	2	3	3	..	..	..	8
1879	1	10	51	70	39	34	10	1	216	..	2	1	..	..	1	..	..	4
1880	..	19	57	59	42	36	10	1	224	..	..	1	5	2	2	1	..	11
1881	..	11	70	66	50	32	12	3	244	..	..	..	3	2	1	1	1	8
1882	1	9	60	62	47	43	14	..	236	..	..	4	3	2	..	..	..	9
1883	..	20	69	63	51	33	15	3	254	..	..	2	2	1	..	1	..	6
1884	..	17	57	74	47	27	17	2	241	..	1	4	5	1	..	1	..	12
1885	2	18	60	57	33	31	12	..	213	..	2	2	2	..	1	1	..	8
1886	..	9	59	47	34	31	6	..	186	..	..	4	2	4	2	1	..	13
1887	..	13	54	56	41	26	6	2	198	..	..	..	2	1	..	..	..	3
1888	..	10	68	80	40	30	15	3	246	..	..	..	4	1	..	..	..	5
1889	..	15	71	66	37	26	7	4	226	..	..	..	1	..	2	..	..	3
1890	..	9	54	71	38	30	5	1	208	..	..	1	2	..	3	..	..	6
1891	..	13	63	74	54	37	7	1	249	..	..	..	..	1	..	..	..	1

Deaths by Puerperal Diseases, According to Age and Cause, from 1866 *to* 1891—Continued).

Year.	RUPTURE OF UTERUS.									RECAPITULATION.									
	Age—Years.																		
	10 to 15.	15 to 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 to 45.	45 to 50.	Total.	Abortion and Miscarriage.	Child-birth.	Extra-Uterine Pregnancy.	Flooding, Placenta Praevia.	Phlegmasia Dolens.	Puerperal Convulsions.	Puerperal Fever.	Puerperal Mania.	Rupture of Uterus.	Total.
1866	..	..	..	..	..	..	..	..	..	5	13	1	38	..	30	130	6	..	223
1867	..	..	..	..	..	..	..	..	..	8	26	1	28	..	53	63	3	..	182
1868	..	..	..	..	..	..	..	..	..	2	32	..	40	4	36	101	7	..	222
1869	..	..	..	..	..	..	..	..	..	2	25	..	33	3	48	108	5	..	224
1870	..	..	..	1	..	..	1	..	2	7	23	2	41	1	46	150	6	2	278
1871	..	..	..	..	2	2	1	..	5	29	51	3	30	4	57	193	9	5	381
1872	..	..	1	..	1	2	1	..	5	27	56	..	33	6	56	284	9	5	476
1873	..	..	..	..	2	2	..	..	4	33	44	1	34	2	35	258	16	4	427
1874	..	..	..	..	..	1	..	..	1	18	38	3	39	7	50	232	5	1	393
1875	..	..	1	2	2	1	..	..	6	17	39	..	46	5	27	222	8	6	370
1876	..	..	..	..	1	3	..	..	4	17	43	1	42	3	35	190	7	4	342
1877	..	..	..	..	1	2	..	..	3	15	43	1	21	3	20	185	7	3	298
1878	..	..	..	..	..	..	..	..	..	22	39	4	27	4	24	172	8	..	300
1879	..	..	..	..	..	..	1	..	1	24	51	2	32	3	26	216	4	1	359
1880	..	..	..	..	..	..	..	..	..	46	65	..	28	4	29	224	11	..	407
1881	..	..	..	..	..	..	..	..	..	34	78	2	27	4	29	244	8	..	426
1882	..	..	..	..	..	..	..	..	..	45	56	..	22	4	35	236	9	..	407
1883	..	..	..	..	..	..	..	..	..	28	65	4	36	3	20	254	6	..	416
1884	..	..	..	..	..	..	..	..	..	34	71	2	41	8	29	241	12	..	438
1885	..	..	..	..	..	..	..	..	..	40	48	2	46	1	36	213	8	..	394
1886	..	..	..	..	..	..	..	..	..	37	58	4	41	1	31	186	13	..	371
1887	..	..	..	..	..	..	..	..	..	43	45	7	36	2	21	198	3	..	355
1888	..	..	..	..	..	1	..	..	1	41	70	3	38	2	36	246	5	1	442
1889	..	..	..	..	1	3	1	..	5	47	47	7	31	2	25	226	3	5	393
1890	..	..	..	1	1	1	1	..	4	45	29	5	40	..	46	208	6	4	383
1891	..	1	..	4	..	4	1	..	10	48	18	14	24	1	55	249	1	10	420

Deaths by Suicide According to Means Used and Nationality, from 1869 to 1891, and by Five-Year Periods.

Nationality.	Cuts and Stabs.		Drowning.		Gunshots.		Hanging.		Jumping from Height.		Poison.		Other Means.		Total.		Total of Both Sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
1869–1873.																	
United States....	15	5	2	3	39	5	9	4	2	..	38	21	..	..	105	38	143
Foreign.....	42	13	26	11	83	3	76	16	18	11	81	53	2	1	328	108	436
Total.....	57	18	28	14	122	8	85	20	20	11	119	74	2	1	433	146	579
1874–1878.																	
United States....	14	5	6	3	68	2	13	7	5	4	36	21	3	..	145	42	187
Foreign.....	55	4	26	14	140	2	75	17	20	11	149	69	6	..	471	117	588
Total.....	69	9	32	17	208	4	88	24	25	15	185	90	9	..	616	159	775
1879–1883.																	
United States....	16	2	6	..	61	5	15	3	6	4	38	22	1	..	143	36	179
Foreign.....	66	11	31	13	164	6	96	15	26	13	122	52	..	1	505	111	616
Total.....	82	13	37	13	225	11	111	18	32	17	160	74	1	1	648	147	795
1884–1888.																	
United States....	22	4	6	3	110	10	24	5	15	9	55	49	1	..	233	80	313
Foreign.....	65	10	35	16	253	10	131	29	35	15	160	68	1	..	680	148	828
Total.....	87	14	41	19	363	20	155	34	50	24	215	117	2	..	913	228	1,141
1889–1891.																	
United States....	13	..	7	1	67	9	22	2	12	11	39	38	..	..	160	61	221
Foreign.....	41	5	12	4	196	8	103	9	14	11	102	56	1	..	469	93	562
Total.....	54	5	19	5	263	17	125	11	26	22	141	94	1	..	629	154	783
1869–1891.																	
United States....	80	16	27	10	345	31	83	21	40	28	206	151	5	..	786	257	1,043
Foreign.....	269	43	130	58	836	29	481	86	113	61	614	298	10	2	2,453	577	3,030
Total.....	349	59	157	68	1,181	60	564	107	153	89	820	449	15	2	3,239	834	4,073

Note.—The records of the Department do not give the details of suicides, according to sex, for any year prior to 1869.

Deaths by Suicide, According to Means Used, Nativity and Sex, from 1878 to 1891, and by Five-Year Periods.

Nativity.	Cut and Stab.		Drowning.		Gunshot.		Hanging.		Jumping from Height.		Poison.		Other Means.		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1878–1882.																
Austro-Hungary	..	..	..	..	5	..	..	..	1	..	4	1	..	..	10	1
Bohemia	1	..	..	..	2	..	..	..	..	..	4	1	..	..	7	1
Belgium	2	..	..	..	1	..	..	..	..	..	..	..	..	..	3	..
British America	1	..	..	..	2	..	1	..	1	..	..	2	..	..	5	2
England	5	1	2	..	6	..	..	..	3	2	10	4	..	..	26	7
France	1	1	..	..	11	..	3	..	1	1	5	2	..	..	21	4
Germany	39	4	15	6	81	4	72	8	11	2	65	17	..	1	283	42
Ireland	12	4	3	5	16	1	9	6	5	2	18	18	1	..	64	36
Italy	2	..	..	..	5	..	..	..	1	2	1	1	..	..	9	3
Poland	..	..	..	..	2	..	1	..	1	..	1	1	..	..	5	1
Russia	..	..	..	..	1	..	3	..	..	..	1	..	..	..	5	..
Scotland	1	..	..	1	2	..	..	..	..	..	3	..	..	..	6	1
Switzerland	..	..	..	..	3	..	2	1	..	..	..	3	..	..	5	4
Sweden	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
United States	13	4	6	1	57	4	15	5	6	4	34	23	1	..	132	41
Unknown	2	..	5	..	7	..	6	..	1	..	7	1	..	..	28	1
Other foreign countries	2	..	1	1	7	..	2	..	2	1	5	..	..	..	19	2
Total	83	14	32	14	208	9	114	20	33	14	158	74	2	1	630	146
1883–1887.																
Austro-Hungary	2	..	..	1	4	..	1	1	1	1	2	1	..	..	10	4
Bohemia	1	..	..	..	4	..	6	..	2	1	1	..	..	..	14	1
Belgium	..	..	..	..	2	..	..	..	..	..	..	..	..	..	2	..
British America	2	..	2	..	4	..	1	..	..	..	2	2	..	..	11	2
England	5	..	..	..	9	..	3	..	1	1	11	4	..	..	29	5
France	1	..	..	1	9	1	2	1	1	1	7	1	..	..	20	5
Germany	31	6	23	7	157	7	82	19	15	5	80	31	..	..	388	75
Ireland	8	3	5	7	10	1	10	5	9	5	21	21	..	..	63	42
Italy	3	..	3	..	4	..	1	..	..	..	2	2	..	..	13	2
Poland	..	..	..	..	2	..	1	..	..	1	4	..	..	..	7	1
Russia	1	..	..	..	2	..	3	2	..	..	1	2	..	..	7	4
Scotland	2	..	1	..	4	..	..	..	..	..	1	..	..	..	8	..
Switzerland	1	..	..	..	2	1	1	..	1	..	2	1	..	..	7	2

Deaths by Suicide, According to Means Used, Nativity and Sex, from 1878 *to* 1891, *and by Five-Year Periods*—(Continued).

Nativity.	Cut and Stab.		Drowning.		Gunshot.		Hanging.		Jumping from Height.		Poison.		Other Means.		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1883–1887.																
Sweden	1	1	..	..	5	..	2	..	1	..	1	1	..	..	10	2
United States	17	5	6	3	103	9	23	1	15	6	39	36	..	..	203	60
Unknown	2	..	3	1	13	..	4	..	..	1	6	1	..	..	28	3
Other foreign countries	2	..	2	..	9	..	6	1	1	..	5	1	..	..	25	2
Total	79	15	45	20	343	19	146	30	47	22	185	104	..	..	845	111
1888–1891.																
Austro-Hungary	2	..	1	..	12	3	4	1	1	1	8	4	..	..	28	5
Bohemia	1	1	..	..	5	1	3	..	..	..	4	2	..	..	13	4
Belgium	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..
British America	..	..	1	..	..	..	..	1	..	..	1	1	..	..	2	1
England	7	2	..	..	16	..	2	..	1	2	10	2	..	..	36	6
France	4	..	..	..	7	1	4	..	1	1	2	2	..	..	18	4
Germany	22	..	8	3	128	3	78	4	9	3	73	28	..	..	318	41
Ireland	12	3	1	1	11	..	5	3	5	3	20	20	1	..	55	30
Italy	..	..	..	..	8	1	2	..	..	1	..	2	..	..	10	4
Poland	..	..	..	..	7	..	5	..	1	..	..	1	..	..	13	1
Russia	1	..	..	..	4	..	4	..	..	1	2	3	..	..	11	4
Scotland	1	..	..	..	..	..	..	..	1	..	3	..	..	..	5	..
Switzerland	2	..	1	..	12	..	1	..	..	1	1	..	..	..	17	1
Sweden	..	..	1	..	1	..	2	..	..	..	1	1	..	..	5	1
United States	22	..	9	1	91	10	28	5	13	14	58	54	..	..	221	84
Unknown	2	..	2	..	28	1	9	1	1	..	8	2	1	..	51	4
Other foreign countries	1	..	2	..	10	..	2	1	2	1	9	2	..	..	26	4
Total	77	6	26	5	340	20	151	16	35	28	200	124	2	..	831	199
1878–1891.																
Austro-Hungary	4	..	1	1	21	3	5	2	3	2	14	6	..	..	48	14
Bohemia	3	1	..	..	11	1	9	..	2	1	9	3	..	..	34	6
Belgium	2	..	..	..	3	..	2	..	..	..	..	..	..	..	7	..
British America	3	..	3	..	6	..	2	1	1	..	3	5	..	..	18	6
England	17	3	2	..	31	..	5	..	5	5	31	10	..	..	91	18

Deaths by Suicide, According to Means Used, Nativity and Sex, from 1878 *to* 1891, *and by Five-Year Periods*—(Continued).

Nativity.	1878–1891.															
	Cut and Stab.		Drowning.		Gunshot.		Hanging.		Jumping from Height.		Poison.		Other Means.		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
France	6	1	..	1	27	2	9	1	3	3	14	5	..	..	59	13
Germany	92	10	46	16	366	14	232	31	35	10	218	76	..	1	989	158
Ireland	32	10	9	13	37	2	24	14	19	10	59	59	2	..	182	108
Italy	5	..	3	..	17	1	3	..	1	3	3	5	..	..	32	9
Poland	..	..	..	..	11	..	7	..	2	1	5	2	..	..	25	3
Russia	2	..	..	..	7	..	10	2	..	1	4	5	..	..	23	8
Scotland	4	..	1	1	6	..	..	..	1	..	7	..	..	..	19	1
Switzerland	3	..	1	..	17	1	4	1	1	1	3	4	..	..	29	7
Sweden	3	1	1	..	6	..	4	..	1	..	2	2	..	..	17	3
United States	52	9	21	5	251	23	66	11	34	24	131	113	1	..	556	185
Unknown	6	..	10	1	48	1	19	1	2	1	21	4	1	..	107	8
Other foreign countries	5	..	5	1	26	..	10	2	5	2	19	3	..	..	70	8
Total	239	35	103	39	891	48	411	66	115	64	543	302	4	1	2,306	555

Note.—The records of the Department do not give the nativity of suicides in detail for any year prior to 1878.

Order of Succession of Mortality by Months for 1888, 1889, 1890 *and* 1891.

1891.		1890.		1889.		1888.	
Months.	Deaths.	Months.	Deaths.	Months.	Deaths.	Months.	Deaths.
April	5,048	January	4,745	July	4,333	July	4,259
July	4,261	July	4,254	March	3,778	March	4,014
March	3,854	June	3,485	April	3,593	August	3,594
December	3,734	March	3,339	January	3,375	June	3,448
May	3,692	August	3,332	August	3,359	April	3,348
August	3,648	April	3,230	February	3,327	May	3,342
June	3,562	May	3,188	June	3,321	December	3,263
January	3,334	December	3,184	December	3,319	February	3,191
October	3,249	February	2,988	May	3,165	January	3,084
September	3,231	September	2,882	September	2,799	October	2,970
February	3,026	November	2,748	October	2,724	September	2,962
November	3,020	December	2,728	November	2,586	November	2,700
Total	43,659	Total	40,103	Total	39,679	Total	40,175

Table showing Population, Deaths, Percentage of Deaths and the number of Persons Living to one Death from 1866 to 1891.

Years.	Population.	Deaths.	Deaths to 100 Persons Living.	Persons Living to one Death.
1866	767,979	26,815	3·49	28.6
1867	808,489	23,159	2.86	34·9
1868	851,137	24,889	2·93	34·2
1869	896,034	25,167	2.81	35.6
1870	943,300	27,175	2.88	34·7
1871	955,921	26,976	2.82	35·4
1872	968,710	32,647	3·37	29·7
1873	981,671	29,084	2.96	33.8
1874	1,030,607	28,727	2.79	35·9
1875	1,044,396	30,709	2·94	34·0
1876	1,075,532	29,152	2.71	36.9
1877	1,107,597	26,203	2.37	42·3
1878	1,140,617	27,008	2.37	42·3
1879	1,174,621	28,342	2.41	41·4
1880	1,209,268	31,937	2.64	37·9
1881	1,246,011	38,624	3·10	32·3
1882	1,283,870	37,924	2.95	33·9
1883	1,322,880	34,011	2.57	38·9
1884	1,363,075	35,034	2.57	38·9
1885	1,404,401	35,682	2.54	39·4
1886	1,447,166	37,351	2.58	38·7
1887	1,491,137	38,933	2.61	38·3
1888	1,536,444	40,175	2.62	38.2
1889	1,583,120	39,679	2.51	39·9
1830	1,631,232	40,103	2.46	40·7
1891	1,680,796	43,659	2.60	38.5

Births Reported Since 1869, by Months.

YEAR.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
1869.....	1,224	1,075	1,440	1,220	764	849	1,103	1,263	1,484	1,027	1,241	1,257	13,947
1870.....	1,254	1,221	1,375	1,067	1,092	1,080	1,139	1,405	1,004	1,285	1,085	1,517	14,584
1871.....	1,708	1,809	1,808	1,320	1,512	1,439	1,741	1,918	1,764	1,936	1,915	1,951	20,821
1872.....	1,899	1,710	1,870	1,721	1,688	1,579	1,882	1,998	1,988	1,963	1,886	1,884	22,068
1873.....	1,969	1,761	1,809	1,706	1,571	1,651	2,112	2,080	2,122	1,928	1,923	2,051	22,683
1874.....	2,168	1,957	2,140	1,856	1,869	2,283	2,419	2,312	2,172	2,229	2,116	2,226	25,747
1875.....	2,100	1,888	2,209	1,927	1,670	1,922	2,046	2,086	1,976	1,996	1,952	2,041	23,813
1876.....	1,998	2,077	2,109	1,708	1,897	1,867	1,986	2,188	1,929	2,041	1,954	1,990	23,744
1877.....	2,110	1,886	2,234	1,787	1,753	1,975	2,173	2,300	2,052	2,511	2,091	2,697	25,569
1878.....	2,462	1,887	2,331	1,958	1,797	1,774	2,332	2,200	2,230	2,320	1,897	2,541	25,729
1879.....	2,140	1,777	2,539	1,812	1,849	2,016	2,001	2,274	2,249	2,432	2,081	2,403	25,573
1880.....	2,313	2,176	2,457	2,107	1,890	2,337	2,418	2,367	2,398	2,334	2,340	2,399	27,536
1881.....	2,387	2,050	2,395	1,898	1,931	2,050	2,087	2,449	1,988	2,320	2,279	2,266	26,130
1882.....	2,278	2,092	2,506	2,042	2,150	2,665	2,060	2,469	2,365	2,471	2,292	2,531	27,321
1883.....	2,566	2,314	2,423	2,283	2,107	2,294	2,408	2,540	2,457	2,796	2,374	2,410	28,972
1884.....	2,695	2,404	2,602	2,362	2,207	2,377	2,688	2,544	2,720	2,782	2,382	2,764	30,527
1885.....	2,651	2,479	2,490	2,356	2,144	2,293	2,320	2,703	2,601	2,762	2,399	2,832	30,030
1886.....	2,648	2,527	2,844	2,358	2,073	2,553	2,692	2,760	2,638	2,809	2,713	2,704	31,319
1887.....	2,776	2,610	2,788	2,547	2,366	2,619	2,688	3,211	3,121	3,159	2,962	3,176	34,023
1888.....	2,529	3,520	3,112	2,541	2,400	2,829	3,191	3,449	2,941	3,310	3,114	3,200	36,136
1889.....	3,388	2,950	2,931	2,800	3,082	2,827	3,370	3,245	3,235	3,464	3,168	3,067	37,527
1890.....	3,257	2,862	3,142	2,948	2,833	3,462	3,644	3,473	3,288	3,167	3,193	3,981	39,250
1891.....	3,770	3,324	3,582	3,328	3,053	3,332	4,895	4,459	4,354	4,431	4,246	4,230	46,904

NOTE—The marked increase in the number of births reported in July, 1891, and subsequent months, was due to the prosecution of delinquents.

Marriages Reported, by Months, Since 1866.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1866.....	256	228	229	274	461	523	601	554	604	767	683	612	5,772
1867.....	557	493	517	636	766	727	580	530	645	674	578	441	7,144
1868.....	569	547	469	615	744	635	524	584	584	623	658	374	6,926
1869.....	687	621	565	883	832	709	656	608	998	620	822	694	8,595
1870.....	717	580	734	500	702	804	590	538	628	662	1,049	481	7,985
1871.....	636	640	523	654	830	749	583	651	901	894	808	777	8,646
1872.....	783	713	515	864	833	767	699	639	779	885	863	728	9,068
1873.....	778	687	645	776	852	853	649	606	781	825	733	686	8,871
1874.....	639	622	611	765	806	781	655	538	723	830	737	690	8,397
1875.....	583	579	489	724	736	677	649	518	620	710	732	548	7,565
1876.....	610	654	541	566	623	652	471	521	580	735	594	552	7,499
1877.....	553	526	526	585	693	619	510	504	596	706	692	617	7,121
1878.....	600	507	637	635	665	684	555	472	670	750	748	706	7,829
1879.....	671	589	530	664	754	752	615	515	717	976	888	773	8,446
1880.....	760	709	645	746	732	800	618	589	768	882	857	870	9,006
1881.....	880	670	818	750	918	950	735	709	827	1,027	1,073	860	10,077
1882.....	914	946	840	784	1,000	980	732	838	927	1,064	1,000	1,069	11,085
1883.....	964	783	863	1,001	1,124	1,068	850	809	910	1,162	986	1,036	11,556
1884.....	1,080	885	966	950	1,114	1,018	966	731	976	1,253	1,136	990	11,869
1885.....	1,000	913	901	917	932	1,052	816	748	978	1,170	1,106	1,081	11,716
1886.....	1,004	884	1,001	969	973	1,058	960	768	1,167	1,164	1,321	1,066	12,235
1887.....	1,043	926	1,088	1,090	1,133	1,242	1,007	1,000	1,170	1,335	1,134	1,220	13,390
1888.....	1,092	1,080	1,092	1,134	1,208	1,391	1,047	1,150	1,164	1,492	1,278	1,330	14,553
1889.....	1,204	1,080	1,133	1,180	1,300	1,332	1,042	1,019	1,210	1,326	1,436	1,224	14,486
1890.....	1,269	1,114	1,168	1,206	1,157	1,402	1,082	1,009	1,253	1,493	1,313	1,453	14,999
1891.....	1,243	1,202	1,233	1,280	1,221	1,383	1,221	995	1,317	1,408	1,413	1,570	15,706

Percentage of Marriages in each Month to Total of the Year Since 1866.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1866	4.42	3.94	3.95	4.73	7.96	9.02	10.38	9.56	10.43	13.24	11.79	10.57
1867	7.80	6.90	7.24	8.90	10.72	10.18	8.12	7.42	9.03	9.43	8.09	6.17
1868	8.22	7.90	6.77	8.88	10.74	9.17	7.57	8.43	8.43	8.99	9.50	5.40
1869	7.90	7.14	6.50	10.16	9.57	8.15	7.54	6.99	11.48	7.13	9.45	7.98
1870	8.98	7.26	9.19	6.26	8.79	10.08	7.39	6.74	7.86	8.29	13.14	6.02
1871	7.36	7.40	6.05	7.56	9.60	8.66	6.74	7.53	10.42	10.34	9.35	8.99
1672	8.03	7.92	5.72	9.59	9.25	8.51	7.76	7.09	8.65	9.82	9.58	8.08
1873	8.77	7.74	7.27	8.75	9.60	9.02	7.32	6.83	8.80	9.30	8.26	7.73
1874	7.61	7.41	7.28	9.11	9.60	9.30	7.80	6.40	8.61	9.88	8.78	8.22
1875	7.71	7.65	6.46	9.57	9.73	8.95	8.58	6.85	8.20	9.39	9.68	7.24
1876	8.59	9.21	7.62	7.97	8.78	9.18	6.63	7.34	8.17	10.35	8.37	7.78
1877	7.78	7.38	7.38	8.21	9.72	8.68	7.15	7.07	8.36	9.90	9.71	8.66
1878	7.86	6.65	8.35	8.32	8.72	8.97	7.27	6.19	8.78	9.83	9.81	9.25
1879	7.97	6.97	6.28	7.86	8.93	8.90	7.28	6.10	8.49	11.56	10.51	9.15
1880	8.51	8.10	7.17	8.28	8.13	8.89	6.87	6.54	8.53	9.80	9.52	9.66
1881	6.95	6.65	8.51	7.44	9.11	9.43	7.29	7.04	8.21	10.19	10.65	8.53
1882	8.35	8.53	7.40	7.07	9.02	8.84	6.60	7.56	8.36	9.60	9.02	9.64
1883	8.34	6.78	7.47	8.66	9.73	9.24	7.35	7.00	7.87	10.05	8.53	8.97
1884	8.64	7.50	6.49	8.03	9.44	8.62	8.18	6.19	8.27	10.61	9.62	8.39
1885	8.53	7.81	7.69	8.17	8.47	8.98	6.96	6.38	8.35	9.99	9.44	9.23
1886	7.40	7.08	8.69	7.44	7.96	8.66	7.86	6.29	9.55	9.53	10.81	8.73
1887	7.59	7.12	7.92	7.93	8.25	9.04	7.33	7.28	8.52	9.72	10.44	8.88
1888	8.57	7.02	7.01	7.80	8.68	9.57	7.20	7.91	8.01	10.27	8.79	9.15
1889	8.35	7.57	7.87	7.33	9.03	9.25	7.24	7.08	8.61	9.21	9.97	8.50
1890	8.70	7.70	7.52	8.66	7.72	9.35	6.86	6.73	8.36	9.96	8.76	9.69
1891	7.98	8.04	7.17	9.32	7.74	8.84	8.38	6.31	8.35	8.93	8.96	9.96

TABLE OF CONTENTS.

	PAGE
LIST OF OFFICERS AND EMPLOYEES	3-9
REPORT OF THE COMMISSIONERS	11-47
Organization of the Department	11
Public Health	11
Causes of increased mortality	12-16
Infant mortality	16
Summer Corps	17, 18
Contagious diseases	19
Hospitals	20-23
Vaccination	23, 24
Disinfection	24, 25
Ambulance Corps, Veterinarian	25
Sanitary inspection	25-31
Forms of complaints and recommendations	26-31
Tenement-house inspection	31-34
Lodging-houses	35
Slaughter-houses	36
Stables and stable manure	36, 37
Plumbing and ventilation	37
Milk, meat, fish, fruit and food inspection	38, 39
Offensive trades	39
Croton Water	39-43
Meteorology	43
Dead animals and offal	43
Births and marriages	44
Weekly report	45
Suits for enforcement of orders	45, 46
Receipts and expenditures	46, 47
Tables.	
Increase of deaths from certain causes	12
Total deaths by age and sex for 1889, 1890, 1891	12
Deaths by age, with percentage on total mortality, by weeks, 1890 and 1891	13, 14

REPORT OF THE COMMISSIONERS—(*Continued*): PAGE

Deaths by diphtheria, scarlet fever and measles, 1890, 1891 15
Population, deaths and death-rates since 1880 16
Infant mortality since 1875 17
Work of Summer Corps 18
Work of Medical Sanitary Inspectors 19
Work of the hospitals 21, 22
Cost of vaccination since 1887 24
Work of Disinfecting Corps 25
Work of Veterinarian 25
Tenement-house inspection 33
Home-workers in tenement-houses 34
Lodgers and lodging-houses 35
Stables and horses 37
Work of Plumbing Inspectors 38
Work of Food Inspectors 39
Analyses of Croton Water 40–42
Animals and offal removed to offal dock 43
Births and marriages since 1886 ..... 44, 45
Work of Attorney's Office 45, 46
Receipts and Expenses of Department 46, 47

REPORT OF THE SANITARY SUPERINTENDENT 48–187
Sanitary inspection 53–59

Tables.

Inspections and reinspections 53
Complaints 53
Inspections in detail 53, 54
Reports of Inspectors classified 54, 55
Work of Sanitary Police 56
Reports of Sanitary Police classified 57–59

Division of Contagious Diseases 59–69
Medical Sanitary Inspectors 59, 60
Diagnosticians 60, 61
Vaccination service 61
Summer Corps 62
Ambulance and Disinfecting Corps 62
Reorganization 62–67
Medical Sanitary Inspector's Corps 62–64
Vaccination 65
Ambulance Corps 65, 66

Percentage of Marriages in each Month to Total of the Year Since 1866.

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
1866	4.42	3.94	3.95	4.73	7.96	9.02	10.38	9.56	10.43	13.24	11.79	10.57
1867	7.80	6.90	7.24	8.90	10.72	10.18	8.12	7.42	9.03	9.43	8.09	6.17
1868	8.22	7.90	6.77	8.88	10.74	9.17	7.57	8.43	8.43	8.99	9.50	5.40
1869	7.90	7.14	6.50	10.16	9.57	8.15	7.54	6.99	11.48	7.13	9.45	7.98
1870	8.98	7.26	9.19	6.26	8.79	10.08	7.39	6.74	7.86	8.29	13.14	6.02
1871	7.36	7.40	6.05	7.56	9.60	8.66	6.74	7.53	10.42	10.34	9.35	8.99
1672	8.03	7.92	5.72	9.59	9.25	8.51	7.76	7.09	8.65	9.82	9.58	8.08
1873	8.77	7.74	7.27	8.75	9.60	9.62	7.32	6.83	8.80	9.30	8.26	7.73
1874	7.61	7.41	7.28	9.11	9.60	9.30	7.80	6.40	8.61	9.88	8.78	8.22
1875	7.71	7.65	6.46	9.57	9.73	8.95	8.58	6.85	8.20	9.39	9.68	7.24
1876	8.59	9.21	7.62	7.97	8.78	9.18	6.63	7.34	8.17	10.35	8.37	7.78
1877	7.78	7.38	7.38	8.21	9.72	8.68	7.15	7.07	8.36	9.90	9.71	8.66
1878	7.86	6.65	8.35	8.32	8.72	8.97	7.27	6.19	8.78	9.83	9.81	9.25
1879	7.97	6.97	6.28	7.86	8.93	8.90	7.28	6.10	8.49	11.56	10.51	9.15
1880	8.51	8.10	7.17	8.28	8.13	8.89	6.87	6.54	8.53	9.80	9.52	9.66
1881	6.95	6.65	8.51	7.44	9.11	9.43	7.29	7.04	8.21	10.19	10.65	8.53
1882	8.35	8.53	7.40	7.07	9.02	8.84	6.60	7.56	8.36	9.60	9.02	9.64
1883	8.34	6.78	7.47	8.66	9.73	9.24	7.35	7.00	7.87	10.05	8.53	8.97
1884	8.64	7.50	6.49	8.03	9.44	8.62	8.18	6.19	8.27	10.61	9.62	8.39
1885	8.53	7.81	7.69	8.17	8.47	8.98	6.96	6.38	8.35	9.99	9.44	9.23
1886	7.40	7.08	8.69	7.44	7.96	8.66	7.86	6.29	9.55	9.53	10.81	8.73
1887	7.59	7.12	7.92	7.93	8.25	9.04	7.33	7.28	8.52	9.72	10.44	8.88
1888	8.57	7.02	7.01	7.80	8.68	9.57	7.20	7.91	8.01	10.27	8.79	9.15
1889	8.35	7.57	7.87	7.33	9.03	9.25	7.24	7.08	8.61	9.21	9.97	8.50
1890	8.70	7.70	7.52	8.66	7.72	9.35	6.86	6.73	8.36	9.96	8.76	9.69
1891	7.98	8.04	7.17	9.32	7.74	8.84	8.38	6.31	8.35	8.93	8.96	9.96

REPORT OF THE SANITARY SUPERINTENDENT—(*Continued*):

Sources of Probable contamination (in detail)— PAGE

5. Cross river and tributaries 115–121
6. Lake Mahopac and Muscoot river 122–126
7. Croton river, from junction of branches to Croton Lake 126–129
8. Croton Lake and tributaries 130–141

Chemical analysis and interpretation of results 141–172
Methods of analysis 142–147
Determination of physical characters 142, 143
" chlorine 143
" phosphates 143
" nitrogen in nitrites 143
" " in nitrates 144
" free ammonia 145
" albuminoid ammonia 145
" hardness 146
" total solids 147
" organic and volatile and mineral matter 147
Well waters on New York Island 147
Constitution of pure surface water 148
Effect of storage in reservoirs 152
Self-purification of streams 152–154

Results of analysis and discussion of same 154–172
1. Sodom Reservoir and east branch 156, 157
2. Reservoir "G" and middle branch 158, 159
3. Boyd's Corners Reservoir, west branch, and Lakes Gleneida and Gilead 160, 161
4. Titicus river 162, 163
5. Cross river and Beaver Dam brook 164, 165
6. Lake Mahopac and Muscoot river 166, 167
7. Croton river 168, 169
8. Croton Lake 170, 171
Conclusions 172
Well waters, New York Island 174, 175
Examination of milk 176, 177
Experimental analyses 177
Milk inspection 178–180
Fruit and food inspection 180, 181
Meat inspection 182, 183
Fish inspection 183
Inspection of offensive trades 183–187

REPORT OF THE SANITARY SUPERINTENDENT—(*Continued*):

Sources of probable contamination (in detail)—

Tables. PAGE

Summary .. 75
Work of Milk Inspectors 75
Work of Fruit and Food Inspectors 76
Work of Meat and Fish Inspectors 77, 78
Work of Assistant Chemists 78–81
Work of Inspectors of Offensive Trades 81–84
Analyses of Croton water in city 85–89
Flow of Croton river, in gallons, since 1880 90
Sources of contamination of Croton water 93–141
Analyses of Croton water (unpolluted) 151
Analyses of Croton water at watershed 156–171
Analyses of well water, New York Island 174–175
Analyses of preserved milk 176, 177
Total receipts of milk, 1890 and 1891, by months 179, 180
Total receipts of fruits, canned goods and vegetables, 1891 181
Total number of animals slaughtered, 1891 182
Total receipts of meat and poultry, 1891 182, 183
Total receipts of fish, 1891 183
Daily output of gas companies, etc 183
Total amount of coal consumed since 1888 187

REPORTS OF HOSPITAL PHYSICIANS 188–205

Willard Parker and Reception Hospitals 188–194
Comments of Resident Physician 193–194

Tables.

Willard Parker Hospital 188–190
Cases according to sex, nativity and final disposition, with percentage of mortality. 188
Cases according to disease, sex, nativity and place whence received 188, 189
Cases according to disease, age, nativity and final disposition 190

Reception Hospital 190–193
Cases according to sex, nativity and final disposition 190
Cases according to disease, sex, nativity, place whence received and final disposition 191, 192
Recapitulation 193

Riverside Hospital 194–205
Comments of Resident Physician 205, 206

Tables.

Cases according to disease, sex and month admitted 194
Cases according to disease, sex, nativity, color, place whence received, and final disposition 195, 197

REPORTS OF HOSPITAL PHYSICIANS—(*Continued*):

Riverside Hospital— PAGE

Cases among immigrants, according to disease, sex and mortality by months.... 198, 199
Cases according to disease, result of treatment and complications..... 200, 201
Cases according to disease, sex, age and result of treatment, with percentage of mortality..... 202 204
Recapitulation..... 205

REPORT ON THE TENEMENT-HOUSE POPULATION..... 206-231
The tenement-house census..... 206, 207
Description of districts..... 207-212
Results of the tabulation..... 212-214

Tables.

I. Population, deaths and death-rates by districts and ages..... 214-217
II. Population, deaths and death-rates by wards and ages..... 218
III. Deaths by particular diseases by districts..... 219-222
IV. Deaths by particular diseases, by wards..... 222-223
V. Death-rates by particular diseases, by districts..... 223-226
VI. Death-rates by particular diseases, by wards..... 227
VII. Deaths according to cause and density of population..... 228
VIII. Death-rates according to cause and density of population..... 228
IX. Population, deaths and death-rates by age and density of population..... 229
X. Population, deaths and death-rates in certain special localities..... 229
XI. Deaths by particular diseases in certain special localities..... 230
XII. Death-rates by particular diseases in certain localities..... 230
XIII. Population, deaths and death-rates of houses occupied by home-workers..... 230, 231
XIV. Deaths and death-rates in houses occupied by home-workers..... 231

REPORT OF THE REGISTER OF RECORDS..... 232-367
Comments on the vital statistics for 1891..... 232-240
Principal causes of death..... 232, 233
Infantile mortality..... 234
Influenza..... 234-238
Infectious diseases, other causes..... 238
Nativity, deaths in institutions, births and marriages..... 239
Searches and transcripts..... 240

Tables.

Deaths by classes, 1890 and 1891..... 232
Deaths by certain diseases, 1890 and 1891..... 233
Deaths by age and sex, 1889, 1890, 1891..... 234
Deaths reported during epidemic of influenza by days and weeks..... 234, 235
Deaths reported weekly during epidemic of influenza in 1890 and 1891..... 235, 236

REPORT OF THE REGISTER OF RECORDS—(*Continued*): PAGE

Deaths from bronchitis, pneumonia, phthisis and influenza, January 1889, 1890, and April 1890, 1891 ... 236
Deaths from bronchitis, pneumonia and phthisis in April, since 1881 ... 237
Deaths by age and sex in April, 1890, 1891 ... 237
Deaths reported daily in December, 1891 ... 238
Work of the year ... 241
Births, marriages and deaths, according to sex, color, parent-nativity and civil condition, and still-births by sex, color, parent-nativity and period of utero-gestation. 241
Places where death occurred ... 241
Deaths according to cause, age, sex and color (males and total of both sexes, 242–255; females, 256–269) ... 242-269
Deaths according to cause, age, sex and color, with meteorology, by months ... 270–273
Same by weeks (reported mortality) ... 274–281
Deaths, total and by certain causes, and in institutions, by Wards ... 282, 283
Deaths by certain causes, total deaths, and deaths in institutions, according to nativity, parentage and color ... 284, 285
Deaths of centenarians (in detail) ... 284, 285
Deaths by suicide, according to method, sex, nativity and age ... 286–287
Deaths by age and sex, and mortality percentage by months ... 288, 289
Number and locality of interments since 1886 ... 290
Deaths in institutions (in detail) ... 290
Deaths by accidents and negligence (in detail) ... 291
Deaths from surgical operations (in detail) ... 292, 293
Marriages, according to former condition of persons married, by months ... 294, 295
Marriages, according to age ... 294, 295
Births, according to color, parent nativity, sex, by whom reported, legitimacy and plural births, by months ... 296, 297
Deaths and death-rates by sex, by months ... 298
Births and birth-rates, by sex, by months ... 298
Increase or decrease of deaths by certain causes, in comparison with ten-year average 299
Cases of sickness reported weekly from diphtheria, scarlet fever and measles, by wards ... 300–306

Summaries for Previous Years.

Total deaths reported by weeks, since 1871 ... 308–311
Deaths by certain causes, by weeks, since 1871 ... 312–351
As follows:
Bronchitis ... 312–315
Diarrhœal diseases ... 316–319
Diarrhœal diseases of children under five years of age ... 320–323
Diphtheria and croup ... 324–327
Measles ... 328–331

REPORT OF THE REGISTER OF RECORDS—(*Continued*):

Deaths by certain causes, by weeks, since 1871— PAGE

Phthisis 332–335
Pneumonia 336–339
Scarlet fever 340–343
Small-pox 344–347
Typhoid fever 348–351

Deaths from accidental poisoning since 1870 352–354
Deaths by puerperal diseases, according to age and cause, since 1866 355–359
Deaths by suicide, according to means used and nationality, from 1869 to 1891, and by five-year periods 360
Deaths by suicide, according to means used, nativity and sex, from 1878 to 1891, and by five-year periods 361–363
Order of succession of mortality by months, since 1888 363
Populations, deaths, percentage of deaths and number of living to one death, since 1866 364
Births reported since 1869, by months 365
Marriages reported since 1866, by months 366
Percentage of marriages in each month to annual total, since 1866 367

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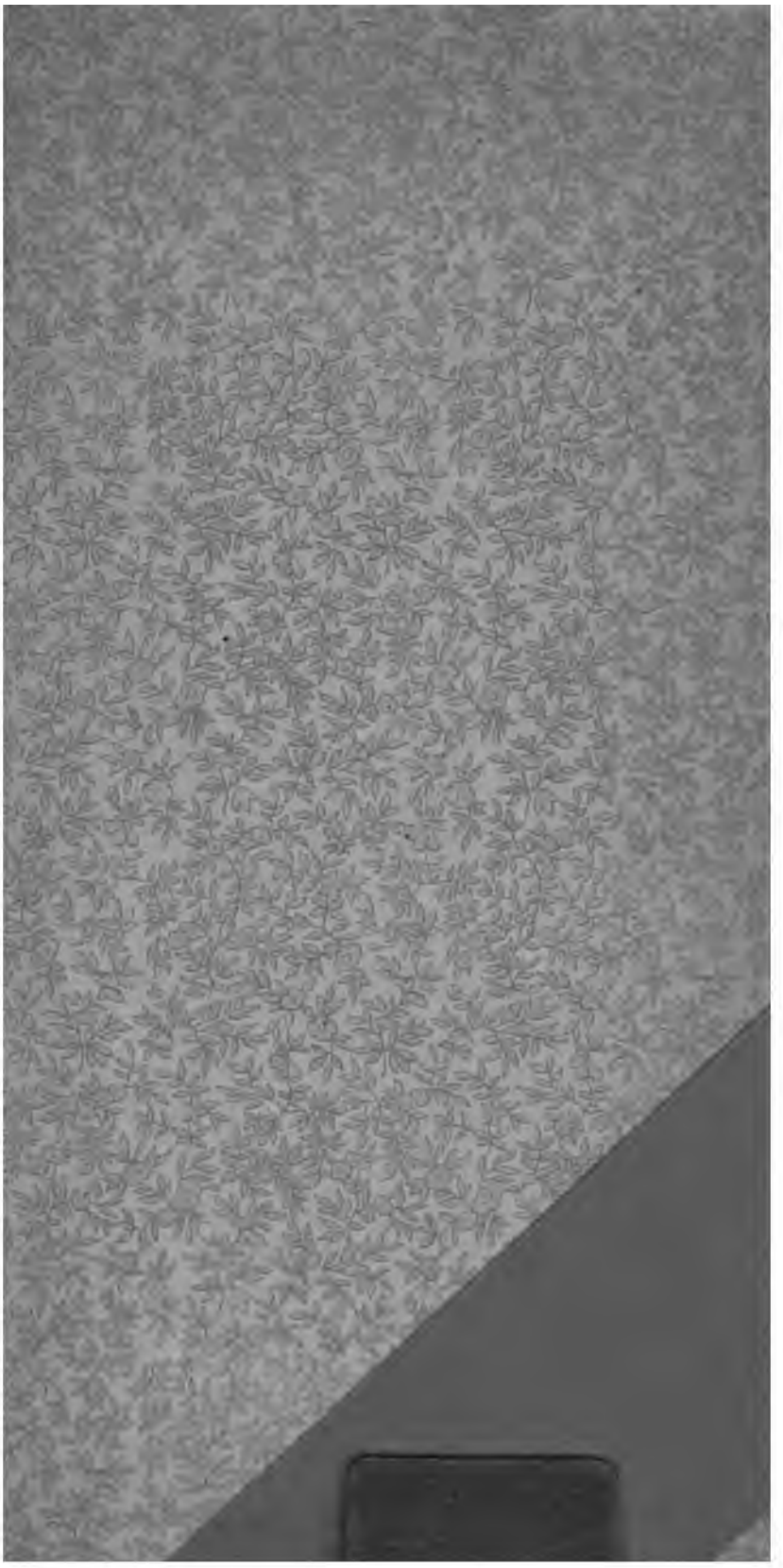
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